A.Y. McDonald Mfg. Co.

E - 1917

DUBUQUE
IOWA

MINNEAPOLIS
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Book .M16

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CATALOGUE E, 1917

A. Y. McDonald Mfg. Co.

Dubuque, Iowa
Minneapolis, Minn. Omaha, Neb.

PLUMBING SUPPLIES
Of Every Description

HEATING SUPPLIES
Steam, Vacuum Vapor and Hot Water

BRASS GOODS
For Water, Gas and Steam

Power Pumps and Working Heads

Pumps, Cylinders and Well Supplies

Pressure Water Supply Systems

Oil Specials

Private Electric Light Plants

**Pipe, Well Casing, Hose, Belting, Packing,
Engine Trimmings, Tools, Etc.**

TH6255
M16

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R. R. Donnelley & Sons Co.

SEP 22 1917

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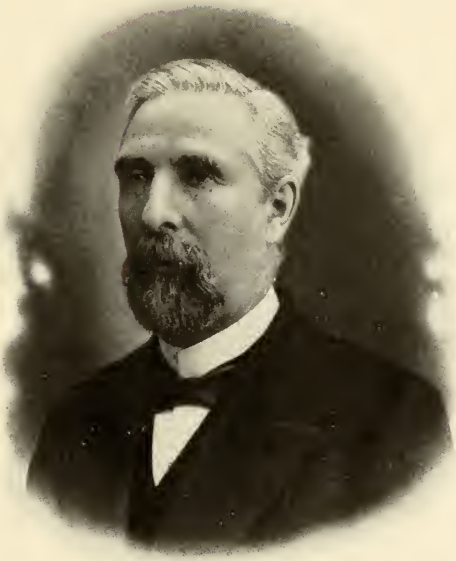
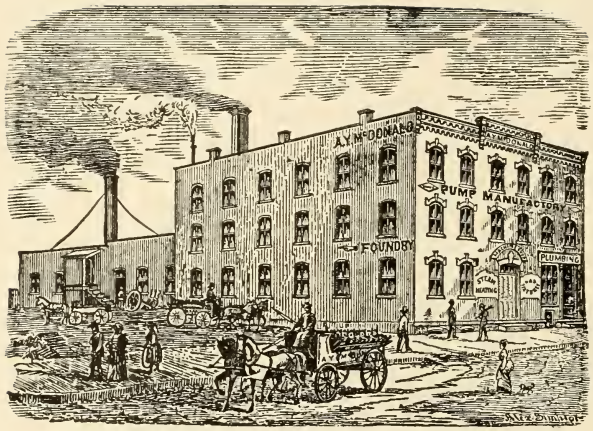
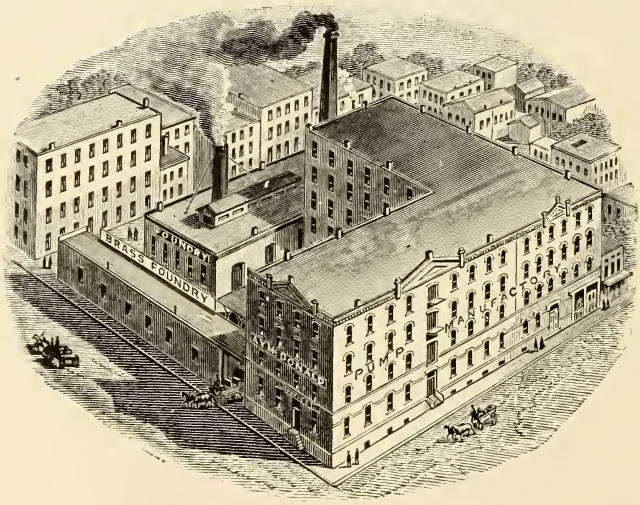


A. Y. McDonald

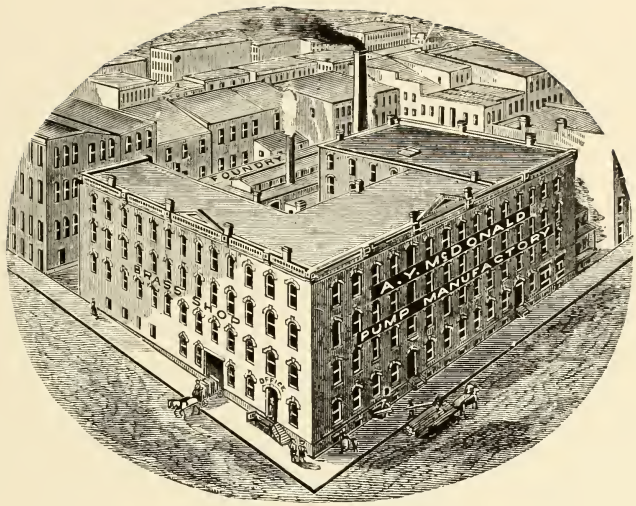
1834 1891


A.Y. McDONALD
FOUNDRY
PUMP MANUFACTORY
PLUMBING

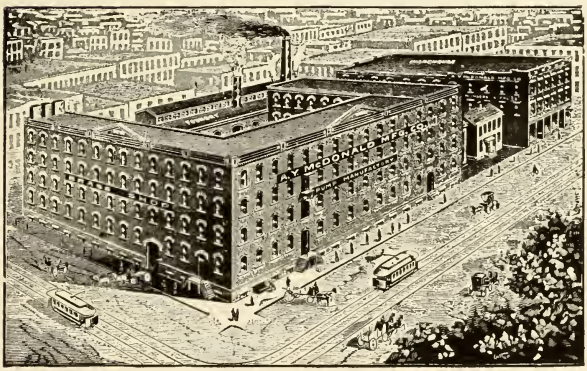
1877


BRASS FOUNDRY
PUMP MANUFACTORY

1880


A. Y. McDONALD
PUMP MANUFACTORY
BRASS SHOP
FOUNDRY

1883

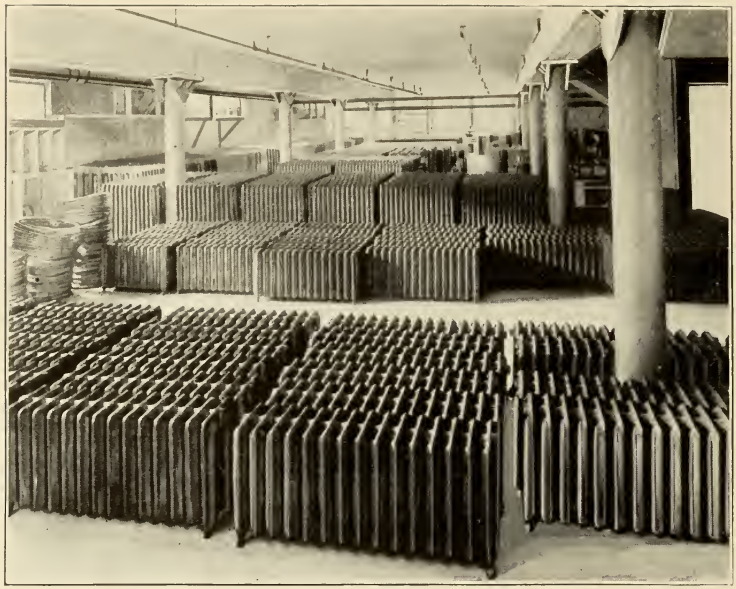

A. Y. McDONALD MFG. CO.

1894

BIRDS-EYE VIEW WAREHOUSE AND FACTORY, 1913

THIRD FLOOR, SHOWING CLOSET TANKS AND SEATS

AISLE VIEW OF FITTING BINS



BASEMENT—RADIATOR DEPARTMENT

RACKS FOR TOILET BOWLS

BASEMENT—SOIL PIPE DEPARTMENT

INTERIOR VIEW OF PIPE WAREHOUSE
Pipe is conveyed to Proper Location by Means of Overhead Rail and Electric Driven Carriage

IMPORTANT

FOR THE GENERAL INFORMATION OF THE TRADE ATTENTION IS CALLED TO THE FOLLOWING WELL-ESTABLISHED

TRADE CUSTOMS

PIPE

WROUGHT IRON PIPE is a term used to distinguish **WROUGHT** from **CAST PIPE.** It is construed to mean Standard Pipe, and is generally made from soft steel. Persons desiring to obtain pipe made from Puddled Iron, must designate **GENUINE WROUGHT IRON PIPE,** for which an extra charge is made.

DAMAGES

We guarantee material sold, but only to the extent of supplying perfect goods for any found defective, and will not allow any claims for labor or consequential damages. The measure of damage shall be the price of any defective piece, such defective piece to be returned before credit will be given.

RETURNED GOODS

When orders have been correctly filled, no credit will be allowed for goods returned, nor will teamsters be permitted to accept goods to be returned, unless a full explanation has been made and our consent obtained. All goods returned — if accepted — will be credited at the same price at which they were charged, **LESS 10 PER CENT** and all shipment expenses.

BREAKAGE

All goods are packed by skilled men. If an article is broken in transit, the condition of the package at its destination is no evidence of its original condition. When goods are shipped to a customer and have been receipted for by a Transportation Company, in good condition, the shipment immediately becomes the property of consignee; no allowance will be made for breakage or loss in transit, and consignee must look to Transportation Company for relief.

BOXING AND CARTAGE

We charge boxing and cartage at cost on everything we ship to the retail trade, regardless of point from which shipment emanates, or destination.

CONTRACTS, SALES AND PRICES

All agreements are contingent upon strikes, fires, accidents or delays beyond our control. All prices are subject to change without notice, and all contracts and orders taken are subject to approval of the executive office at Dubuque, Iowa.

CHANGES

We reserve the right to make any changes in detail on our goods, which may, in our opinion, develop an improvement or gain convenience for the operator, without reference to descriptions and illustrations in this catalog.

CLAIMS

All claims for deductions or shortages must be made within ten days from receipt of material.

PRICES, QUOTATIONS

All list prices are subject to change without notice and quotations are made for immediate acceptance only and subject to change without notice.

TELEGRAPH CODE

QUOTATIONS, ORDERS AND SHIPMENTS

FOR BUYERS

ABACK....Do you manufacture?
ABAFT.....Have you in stock; if not, how soon can you furnish?
ABASH....How many ——— have you in stock?
ABATE....How soon could you furnish?
ABBESS....Can you furnish promptly?
ABDUCT...Can you ship at once?
ABET.....At what price can you furnish?
ABHOR....At what price and how soon can you furnish?
ABODE....Can you ship?
ABOLISH...Can you ship by ——?
ABOUND...Have you shipped?
ABRIDGE..If not, when will you ship?
ADAGE....When will you ship?
ADAM.....When will you ship balance of our order of ——?
ADDER....Quote us lowest price on ——.
ADDLING..Advise by wire how soon you can ship.
ADEPT....We will accept offer.
ADJOURN..We cannot accept offer.
ADJUNCT..Enter our order for ——.
ADMIRE...Ship immediately.
ADMIX....Ship as soon as possible.
ADRIFT....Ship by Boat.
ADVENT...Ship by Rail.
AFFECT....Ship by Express.
AFFIRM....Ship by quickest route.
AFFLICT...Ship by cheapest route.
AFFRAY...Ship to the care of ——.
AFFRIGHT..If you cannot ship in time named, advise us by telegraph.
AFFRONT..If you cannot ship at once, cancel.
AFRESH...If not already shipped, cancel.
AGATE....Ship with sight draft attached to bill of lading.
BABBLE...Get ready and hold for shipping directions.
BABOON...Ship what you have in stock and let balance follow.
BABY.....Ship what you have in stock and hold balance for further instructions.
BACK.....Hold for further instructions our order of ——.
BACKING..Cancel our order of ——.
BADGER...Ship goods ordered at once.
BADNESS..Hasten shipment of.
BAFFLE....We must have.
BAFFLING..Send tracer for shipment.
BAG.....Get through rate of freight.
BAILIFF...Prepay freight.

FOR DEALERS

BALD.....Shall we enter your order?
BALLAD...Shall we ship?
BALLOON..Shall we ship what we have ready?
BALLOT...When shall we ship?
BALTIC....How shall we ship?
BANDAGE..Not in the city; shall we ship direct from factory?
BANDIT....Shall we ship with sight draft attached to bill of lading?
BANNER...Shall we cancel your order?
BANQUET..We manufacture goods referred to.
BANTER...We do not make.
BAPTIST...We have in stock.
BARBER...We have in stock and can furnish at ——.
BARRACK..We have none in stock.
BASEMENT.We have none in stock, but can ship.
BASHFUL..We have no —— in stock, nor is it in the city.
BARREN...We can ship.
BASE.....We can ship promptly.
BASSOON..We can ship at once from stock.
BASTING...We can ship complete on receipt of order.
BASTION...We can ship complete in about ——.
BATCH....We can ship today.
BEACH....We can ship tomorrow.
BEADLE...We cannot ship.
BEAM.....We cannot ship before ——.
BEARD....We can ship —— from stock and the balance ——.
BEARING..We can furnish.
BEAST.....We cannot furnish.
BEAUTY...We can furnish promptly.
BEAVER...We can furnish immediately.
BED.....We cannot promise definitely.
BEDECK...We are entirely out of.
BEDDING..We have entered your order for.
BEDLAM...We have entered your order of.
BEFALL....We will ship your order.
BEFIT.....We will ship with sight draft attached to bill of lading.

TELEGRAPH CODE

QUOTATIONS, ORDERS AND SHIPMENTS—CONTINUED

FOR DEALERS

BEG.....We will ship immediately.
BEGGAR.....We will try to ship.
BEGRUDGE....We expect to ship.
BEHAVE.....We shipped your order.
BEHEAD.....We will trace.
BEHEST.....We have no order.
BEHOLD.....We have ready for shipment.
BELAY.....We are holding the order for ——, shall we ship balance without them?
BEMOAN.....We have suspended work on your order.
BENEFIT.....We have canceled your order.
BENGAL.....Order is being executed and cannot be cancelled.
BENUMB.....Your letter was not received in time.
BEQUEST.....Your telegram was not received in time.
BESET.....Your telegram was unintelligible. Please repeat.
BESOUGHT....We quote you.
BESTOW.....We will accept order.
BETIDE.....We can not accept order.
BETOKEN.....We will hold offer open.
BETRAY.....We can not hold offer open.
BETROTH.....We hereby withdraw all quotations.
BEWAIL.....The price of —— is to-day advanced to ——.
BEWITCH.....Please specify quantity wanted.
BIGNESS.....Please specify sizes and quantity wanted.
BIGOT.....Please send shipping instructions.
BILLIARDS....See our letter of ——.
BIPED.....See our telegram of ——.
BIRTH.....Telegraph to-morrow.
BISCUIT.....Please reply immediately by telegraph.
BISHOP.....Answer by wire at our expense.
BISMUTH.....Must have answer by ——.
BISON.....Will send particulars by mail.
BLAB.....Please answer our letter of the ——.
BLACKING....Please answer our telegram of the ——.

PHRASES

BLAME.....If ordered immediately.
BLAMELESS...If ordered immediately by wire.
BLANCH.....For immediate acceptance.
BLANKET.....For immediate acceptance and shipment.
BLARNEY.....For acceptance within ——.
BLAST.....Less freight allowance per 100 pounds of ——.
BLEED.....Referring to your letter of ——.
BLEMISH.....Referring to your telegram of ——.
BLENDING....In reply to your favor of the ——.
BLESS.....Your order of the ——.
BLESSING.....Our order of the ——.
BLIGHT.....Your order for ——.
BLISSFUL.....Our order for ——.
BLISTER.....In addition to previous order.
BLOAT.....In less than ——.
BLOODY.....Not less than ——.
BLOTCH.....No sooner than ——.
BLOUSE.....Not later than ——.
BLOW.....During this week.
BLUBBER.....Last of this week.
BLUFF.....During next week.
BLUNDER.....Early next week.
BLUNT.....About middle of next week.
BOARD.....Last of next week.
BOAST.....First week in ——.
BOAT.....Second week in ——.
BOBBIN.....Third week in ——.
BOLD.....Last week in ——.
BOLSTER.....Within the next ——.
BOMBARD.....Within a few days.
BOMBAST.....Within one week.
BOMBAY.....Within ten days.
BONDMAN.....Within two weeks.
BONNET.....Within three weeks.
BORROW.....Within four weeks.
BOSOM.....Within a reasonable time.
BOTANY.....Per foot net.
BOUNCE.....Per foot less ——.
BOUND.....Per 100 feet net.
BOUNTY.....Per 100 feet less ——.
BOWLDER.....Per pound net.
BOWLING.....Per pound less ——.
BRACKET.....Per 100 pounds net.
BRAG.....Per 100 pounds less ——.
BRAIN.....Per dozen net.
BRANCH.....Per dozen less ——.
BRAMBLE.....Per 100 net.
BRAVADO.....Per 100 less.

TELEGRAPH CODE

DISCOUNTS

	Per Cent		Per Cent		Per Cent		Per Cent
Clownish..	1	Complex...	23	Cupping...	48	Danish	71
Club.....	1½	Compose...	24	Curator...	49	Danube....	72
Clubbing..	2	Compound..	25	Curse.....	50	Dapple....	72½
Clumsy....	2½	Compute...	26	Cursing...	51	Dappling..	73
Cluster...	3	Comrade...	27	Custard...	52	Daring....	74
Clutch....	3½	Concave....	28	Custody...	52½	Darkness..	75
Coach.....	4	Conceal....	29	Custom....	53	Darling...	76
Coast.....	4½	Concord...	30	Cutlass....	54	Darken....	77
Coasting...	5	Conduct...	31	Dab.....	55	Darning...	77½
Coax.....	6	Confess...	32	Dabbler...	56	Dashing...	78
Coaxing...	7	Confide...	33	Dabbling..	57	Dastard...	79
Cobbler...	7½	Convex....	33⅓	Dabster...	57½	Daub.....	80
Cobweb....	8	Convict....	34	Daddy.....	58	Dawn.....	81
Cockade...	9	Coquette..	35	Dado.....	59	Dazzle....	82
Cockney...	10	Coral.....	36	Dagger....	60	Dazzling...	83
Combat....	11	Cordage...	37	Daggle....	61	Deacon....	84
Combine...	12	Cordial....	38	Dagon.....	62	Deafen....	85
Combust...	12½	Coronal...	39	Dally.....	62½	Deafness..	86
Comet.....	13	Cottage...	40	Damask....	63	Dearth....	87
Comfit....	14	Council....	41	Damp.....	64	Debar.....	88
Comfort...	15	Countess..	42	Dampish...	65	Debate....	89
Comma.....	16	Coupon....	42½	Damsel....	66	Debut.....	90
Command..	17	Courage...	43	Damson....	67	Decade....	91
Comment...	18	Courtesy..	44	Dancer....	67½	Decamp....	92
Commute...	19	Cudgel....	45	Dandy.....	68	Decanter..	93
Compact...	20	Cuffing...	46	Dandruff..	69	Decay.....	94
Compass...	21	Culprit....	47	Dangle	70	Deceit....	95
Complain..	22	Cupid.....	47½				

Declaim.....Per cent discount.	
Declare.....And	⅓
Default..... "	½
Defame..... "	1
Derby..... "	2
Despot..... "	2½
Detach..... "	3
Dial..... "	5
Dogma..... "	5 and 2½
Dolphin..... "	5 " 5
Dotage..... "	7½
Dotard..... "	7½ and 2½
Doublet..... "	7½ " 5
Drag..... "	10
Dragon..... "	10 and 2½
Drama..... "	10 " 5
Dream..... "	10 " 5 and 2½
Dredge..... "	10 " 7½
Drink..... "	10 " 10
Dropsy..... "	10 " 10 and 2½
Drunkard... "	10 " 10 " 5
Ducat..... "	10 " 10 " 5and2½
Dwarf..... "	10 " 10 " 7½
Dwarfish.... "	10 " 10 " 10
Festal..... "	10 " 10 " 10 and 2½
Festival.....And 10 and 10 and 10 and 5	
Festoon.....And 10 and 10 and 10 and 7½	
Fetch.....And 10 and 10 and 10 and 10	
Feudal.....And 10 and 10 and 10 and 10 and 2½	
Fibbing.....And 10 and 10 and 10 and 10 and 5	
Fiddle.....And 10 and 10 and 10 and 10 and 7½	
Fiddling.....And 10 and 10 and 10 and 10 and 10	
Fidget.....And 10 and 10 and 10 and 10 and 10 and 2½	
Field.....And 10 and 10 and 10 and 10 and 10 and 5	
Fight.....And 10 and 10 and 10 and 10 and 10 and 7½	
Figment.....And 10 and 10 and 10 and 10 and 10 and 10	
Filbert.....And 10 and 10 and 10 and 10 and 10 and 10 and 2½	
Filch.....And 10 and 10 and 10 and 10 and 10 and 10 and 5	
Filter.....And 10 and 10 and 10 and 10 and 10 and 10 and 7½	
Filthy.....And 10 and 10 and 10 and 10 and 10 and 10 and 10	

TELEGRAPH CODE

NUMERALS

Brave.....20	Cackle.... 70	Carriage. 600	Charade..4300	Chuckle.. 9200
Breach.....21	Cackling.. 71	Carrot... 625	Charger..4400	Chum..... 9300
Breaking...22	Cadence... 72	Cart..... 650	Chariot...4500	Church... 9400
Breast.....23	Cadet..... 73	Cartoon.. 675	Charity..4600	Cinder... 9500
Brevet.....24	Cafton.... 74	Carver... 700	Charm....4700	Cinnamon. 9600
Brick.....25	Caging..... 75	Carving.. 725	Charming.4800	Citadel... 9700
Bride.....26	Cajole..... 76	Cascade.. 750	Chasten..4900	Citation.. 9800
Bridal.....27	Caldron... 77	Casement. 775	Chastise..5000	Citizen... 9900
Bridling....28	Caleb..... 78	Casino.... 800	Chastity..5100	Citron....10000
Brigade....29	Calendar.. 79	Casket... 825	Chat.....5200	Civilian..11000
Brigand....30	Caliber.... 80	Casting... 850	Chatting. 5300	Claimant.12000
Brilliant...31	Callous... 81	Castle.... 875	Chatham..5400	Clam.....13000
Brimful....32	Calm..... 82	Castor... 900	Chattel..5500	Clamber..14000
Briton.....33	Calmness.. 83	Casual... 925	Cheat....5600	Clammy...15000
Brittle.....34	Calvin..... 84	Cat..... 950	Cheer....5700	Clamor...16000
Broach.....35	Cameo..... 85	Catacomb 975	Cheerful 5800	Clan.....17000
Brocade....36	Camp..... 86	Catch....1000	Chemist..5900	Clang....18000
Brogans....37	Campaign.. 87	Catnip....1100	Cherish...6000	Clanish...19000
Brogue.....38	Camping... 88	Cattish...1200	Cherub...6100	Clapper..20000
Brook.....39	Canal..... 89	Caucus...1300	Chess.....6200	Claret...21000
Brother....40	Canary.... 90	Caustic...1400	Chestnut.6300	Clarion...22000
Brow.....41	Candid..... 91	Cavern...1500	Chicken..6400	Clarify...23000
Buckish.....42	Candle.... 92	Cavil.....1600	Chide.....6500	Clash.....24000
Budget.....43	Candor.... 93	Cavity....1700	Chiding...6600	Clashing. 25000
Buff.....44	Candy..... 94	Cedar....1800	Chief.....6700	Clatter..26000
Buffer.....45	Canine.... 95	Cellar...1900	Chieftain.6800	Clause...27000
Buffoon....46	Canker.... 96	Cement...2000	Child.....6900	Claw.....28000
Bugbear....47	Cannibal.. 97	Censure..2100	Childish..7000	Clawing..29000
Buggy.....48	Canon..... 98	Census...2200	Childless 7100	Cleaver..30000
Bugle.....49	Canopy.... 99	Central..2300	Children.7200	Cleft.....31000
Bulb.....50	Canvas....100	Century..2400	Chilly....7300	Clement..32000
Bullock....51	Caper.....125	Cestus....2500	Chime....7400	Clergy...33000
Bullion.....52	Capital....150	Chafing..2600	Chiming...7500	Client....34000
Bulrush....53	Capstan...175	Chaff....2700	Chimney..7600	Cliff.....35000
Bulwer.....54	Captain....200	Chagrin..2800	China....7700	Climate...36000
Bump.....55	Captor....225	Chalice...2900	Chinese...7800	Climax...37000
Bumping....56	Carbine...250	Chalk....3000	Chink....7900	Climb.....38000
Bumpkin....57	Carat.....275	Challenge3100	Chirp.....8000	Climbing..39000
Bunch.....58	Caravan...300	Chamber..3200	Chisel....8100	Clinch....40000
Bungling...59	Carboy....325	Champion.3300	Choke....8200	Clincher. 41000
Bunting....60	Carcass....350	Chandler 3400	Choking..8300	Clinker..42000
Burden.....61	Cardinal..375	Chant....3500	Choose...8400	Cloak....43000
Burdock....62	Carding...400	Chanting.3600	Choral...8500	Clod.....44000
Burglar....63	Caress.....425	Chaos....3700	Chorus...8600	Clodding. 45000
Cab.....64	Carman....450	Chapel...3800	Chosen...8700	Cloven...46000
Cabbage....65	Carnage...475	Chaplain. 3900	Chowder. 8800	Cloud....47000
Cabal.....66	Carnal....500	Chaplet..4000	Christian 8900	Cloudless 48000
Cabin.....67	Carnival..525	Chapping. 4100	Chronic..9000	Clouded..49000
Cabinet.....68	Carpet....550	Chapters. 4200	Chubby...9100	Clown....50000
Caboose....69	Carrion...575	.....	.....	.....

TELEGRAPH CODE

WROUGHT PIPE

Extra Strong .....Schley
Double Extra Strong .....Dewey

NUMBER OF FEET

25 feet...Africa	800 feet...Holland	8000 feet...Russia
50 " ...Alabama	900 " ...Ireland	9000 " ...Spain
75 " ...Arizona	1000 " ...Japan	10000 " ...Texas
100 " ...Asia	2000 " ...Kentucky	15000 " ...Uruguay
200 " ...Belgium	3000 " ...Liberia	20000 " ...Valparaiso
300 " ...Chili	4000 " ...Maine	25000 " ...Washington
400 " ...Denmark	5000 " ...Nevada	30000 " ...Xenia
500 " ...Egypt	6000 " ...Ohio	40000 " ...Yorkville
600 " ...France	7000 " ...Peru	50000 " ...Zanesville
700 " ...Germany		

BLACK PIPE

1/8 inch...Allegheny	1 1/2 inch....Harrisburg	5 inch.....Newark
1/4 " ...Baltimore	2 " ...Ithaca	6 " .....Oneida
3/8 " ...Camden	2 1/2 " ...Jamestown	7 " .....Paris
1/2 " ...Detroit	3 " ...Kensington	8 " .....Reading
3/4 " ...Erie	3 1/2 " ...Lancaster	9 " .....Salem
1 " ...Fairmount	4 " ...Macon	10 " .....Troy
1 1/4 " ...Galena	4 1/2 " ...Quincy	12 " .....Utica

GALVANIZED PIPE

1/4 inch...Amazon	2 inch...Hudson	6 inch.....Osage
3/8 " ...Bay	2 1/2 " ...Indus	7 " .....Po
1/2 " ...Colorado	3 " ...Juniata	8 " .....Rhine
3/4 " ...Danube	3 1/2 " ...Kanawha	9 " .....Seine
1 " ...Elbe	4 " ...Lake	10 " .....Tweed
1 1/4 " ...Firth	4 1/2 " ...Miami	12 " .....Ural
1 1/2 " ...Ganges	5 " ...Nile	

INDEX TO FIGURE NUMBERS

PUMPS, PUMP JACKS AND WORKING HEADS

Fig. No.	Page	Fig. No.	Page	Fig. No.	Page	Fig. No.	Page
1	699	28	710	138	772	415–14	661
1½	699	34	769	161	724	415–16	662
2	700	35	769	161AC	684	415–16	663
4	704	36	770	179	716	415–24	664 & 665
4½	701	37	770	180	717	418–12	667–668
5	701	38	771	184	716	418–12 Type E	669
5	725	39	771	185	717	418–18	670 & 671
5½	702	40	773	212	735	418–18 Type E	672
6	702	41	773	216	751	418–24	673 & 674
6	725	43	718	216AC	685	425	675
6½	704	44	781	216BC	753	425AC	676
6½	725	45	780	216R	754	425ED	679
7	705	45A	780	216SR	752	425G-I	677
7	726	45B	781	216½	713	425G1½	678
7½	707	46	635	216½	748	440AE	630
7½	727	46AC	637	306	703	440AEB	631
8	705	46S	635	306	726	440AE Type C	632
8	726	46SO	636	309	737	445	640
8½	709	47	778	312	738	445AC	641
9	729	48	778 & 779	316	750	446	642
9 L.F	730	49	778	317	715	446AC	643
11	731	52	774	328	711	446ACE	647
11½	731	53	774	346	638	446DG	645
12	710	54	774	365	720	446ED	646
12	732	60	719	385	711	446G	644
12 L.F	734	61	721	400	639	447	649
12 L.S	733	62	723	402	691	466	680
13	732	65	719	404	688	466AC	681
13 L.F	734	66	721	405	686	487	648
13 L.S	733	66AC	682	406	687	513	775
14	731	67	723	407	689	602	755
15	712	70	722	408	690	609	756
15	739	70AC	683	409	692	609D	757
15½	712	74	775	410	650	612	758
15½	740	87	776	410AC	651	612D	759
16	742	95	708	410AC–E	652	616	760
16½	743	95	728	411AC	653	616D	761
16½ L.F	744	96	708	411AC–E	654	617	768
16¾	745	96	728	411 B–E	655	628	766
17	715	97	727	412 A–C	656	665D	762
18	714	98	706	413 AC	657	666D	762
18	741	100	706	413 AC–E	658	670D	763
19	714	102	709	413 BE	659	685	764
19	741	110	713	414 AC	633	695	767
27	707	116½	746	415 Type A.F.	666	868	867
27	727	116¾	747	415–14	660	869	867

OIL PUMPS AND OIL SYSTEMS

Fig. No.	Page	Fig. No.	Page	Fig. No.	Page
55	1093	115	1095	590	1086
57	1084	200	1105	590E	1088
58	1089	300	1106	590ED	1087
59	1085	457	1091		
100	1104	459	1092		

INDEX

TRADE NUMBERS OF IRON, BRASS-LINED AND BRASS BODY CYLINDERS

Nos. 1 to 166F—Pages 788 to 826.

TRADE NUMBERS OF WORKING BARRELS AND WELL GOODS

No.	Page	No.	Page	No.	Page
400	862	460	846	615	854
405	862	461	846	616	854
412	844	475	846	618	848
419	848	485	846	619	848
421	848	486	846	620	852
429	849	487	846	621	852
431	842	496	840	622	852
433	848	498	849	623	852
434	852	505	847	624	853
440	842	506	847	626	852
441	843	507	847	629	854
442	843	600	854	652	838
445	844	601	854	653	838
446	845	602	854	654	839
448	835	603	854	655	839
449	836	604	854	703	849
450	841	612	853	871	849
451	840	613	853		
453	841	614	853		

INDEX TO PLATE NUMBERS OF CAST IRON TRAPS

Cast Iron Traps retain the same plate numbers as in our trap catalogue.

Plates 4000 to 4228 pages 490 to 513.

EXPLANATION OF PLATE NUMBERS IN CATALOGUE

Plate Numbers shown in connection with illustrations are the Page Number followed by 1, 2, 3, 4, etc., according to the order of the illustration on that page. For example, Page 886, first illustration would be Plate E8861, while third illustration would be Plate E8863, and take Page 1059, first illustration would be Plate E10591, while second illustration would be Plate E10592, and to find the page from a given Plate Number, leave off the last figure of the Plate Number, and the remaining figures give the page on which that Plate Number is shown. For examples, Plate E141 will be found on page 14. Plate 11021 will be found on Page 1102. Plate 91 will be found on page 9.

EXCEPTIONS

On pages 400 to 422 inclusive, Plate Numbers will be the Page followed by a letter, A, B, C, D, etc.

Pages 490 to 513 inclusive, will show Plates 4000 to 4228.

Pumps, Cylinders, Working Barrels, Well Supplies, Oil Pumps and Oil Systems have Figure Numbers and Trade Numbers indexed on this and the preceding page.

INDEX

A

Page

Acid Resisting Ejectors, Special.....1001
Acorns, Railing, Brass.....1223
Railing, Malleable Iron.....1169
Adjustable Ball Joints..... 129
Base Set-length Pumps..... 706
Base Windmill Force Pump Standards..... 748
Brass Traps..... 410
Die Stocks, Armstrong.....1239, 1240
Die Stocks, Oster.....1246
Die Stocks, Toledo.....1242–1244
Dies, Nye.....1241
Nickel-plated Traps.....411, 412
Pipe Hangers.....1217
Pipe Tongs, Brown's.....1257
Pump Stands..... 883
Railing Fittings.....1170
Roof Flashes..... 554
S Wrenches, Westcott.....1254
Sink Seats..... 216
Aetna Window Radiators..... 913
Agrippa Chain Pipe and Fittings Tongs.....1256
Air Brake Hose..... 1119
Cell Pipe Covering..... 948
Chamber Lavatory Supplies, Globe..... 414
Chamber Lavatory Supplies, Pear 415
Chambers..... 885
Chambers, Pump..... 889
Cocks.....1021, 1022
Compressor Windmill Force Pumps.....682–684
Compressors..... 625
Drill Hose.....1119
Pumps..... 624
Valves, Radiator.....932, 933
Ajax Expansion Bolts.....1215
Alberene Stone Laundry Trays...256, 257
All Brass Pump Cylinders.....818–823
Allen Radiator Air Valves..... 932
Alligator Wrenches.....1254
Altitude Gauges.....944, 1015, 1016
Amazon Self-closing Basin Cocks.... 424
Ammonia Gauges.....1016
Andrews Steel Septic Tank System 570, 571
Angle Check Valves, Brass, Jenkins Bros..... 956
Check Valves, Brass, Standard 951, 952
Check Valves, Iron Body, Jenkins Bros..... 966

Page

Angle Valves, Brass, Diamond..... 953
Valves, Brass, Jenkins Bros...955, 958
Valves, Brass, Safety..... 975
Valves, Brass, Standard..... 951
Valves, Iron Body, Extra Heavy.. 963
Valves, Iron Body, Jenkins Bros. 964, 965
Valves, Iron Body, Safety..... 975
Valves, Iron Body, Standard..960, 961
Anti-freezing Double-acting Force Pumps.....716, 717
Set-length Force Pumps.....712–715
Set-length Lift Pumps..... 703
Set-length Pumps...701, 702, 704–711
Anti-friction Chain Hoists, Moore...1136
Apparatus, Unloading, Overhead 1074, 1075
Unloading, Underneath.....1076, 1077
Approved Oil Pumps and Connections 1078, 1079
Arch Pattern Float Valves..... 871
Arco Heating Boilers.....904–907
Tank Heaters..... 478
Wand Vacuum Cleaners....1055–1057
Armstrong Adjustable Die Stocks 1239, 1240
Pipe Threading Tools.....1239, 1240
Artesian Well Cylinders.....834–836
Well Cylinders, Brass..... 845
Well Cylinders, Brass-lined..... 844
Asbestocel Pipe Covering..... 948
Asbestos Building Felt..... 949
Cement..... 949
Joint Runners.....1275
Metallic Packing.....1114
Metallic Sheet Packing.....1112
Millboard..... 949
Rope.....1114
Valve Stem Packing.....1114
Wick.....1114
and Rubber-wound Cloth Packing 1114
Ash Drain Board Mats..... 225
Wood Rods..... 851
Asphaltum Varnish, Black..... 950
Attachments, Clock, Heat Regulator, Honeywell..... 939
Ratchet, Armstrong.....1240
Suction Sweeper, Eureka.....1054
Time, Heat Regulator, Minneapolis..... 941
Vacuum Cleaner, Arco Wand....1057
Windmill, Pump..... 889
Augers, Earth..... 854

Page

Austin Steam Separators..... 993
Automatic Cellar Drains, Penberthy. 555
Electric Switches.....626–628
Gasoline Engine Stops..... 625
Grease Cups, Moon.....1013
Injectors, Penberthy..... 999
Injectors, U. S.....1000
Pipe Holders, Standard..... 887
Pipe Lifters, Standard..... 887
Radiator Air Valves..... 932
Stock Fountains..... 881
Stop and Check Valves, Davis... 981
Water Closets.....59–61
Water Softener and Scale Removing Devices..... 697
Auxiliary Water Heaters..... 908

B

B. & C. Ceiling Plates..... 934
Floor Plates..... 934
Babbitt Metal..... 522
Back Pressure Valves, Davis..... 980
Pressure Valves, Iron Body..... 979
Pressure Valves, Noiseless..... 980
Backs, Sink, Enameled Iron..... 224
Badger Gravel Shoes.....1150
Well Casing.....1150
Bags, Tool, Plumbers'.....1270
Balanced Valves, Fisher..... 986
Bale Rope.....1133
Ball Check Valves, Brass, Standard... 954
Cock Repairs, McDonald..... 443
Cocks, Compound Lever, McDonald..... 441
Cocks, Reliable, McDonald..... 442
Gauge Cocks.....1023
Joint Pipe Hangers, Hanna.....1219
Joints, Adjustable..... 129
and Poppet Pump Cylinder Check Valves, Bronze.....827, 831
Balls, Bronze..... 849
Fuller..... 387
Handle, Pump..... 889
Rubber.....387, 849
Tank, Rubber..... 445
Valve, Rubber.....1122
Bar Tin..... 522
Barbers' Lavatories, Enameled Iron 177, 179
Lavatories, Porcelain..... 176
Barnes Diaphragm Pumps..... 867
Three-wheel Pipe Cutters.....1251
Barometric Pressure Information....1282
Barrel Pumps, McDonald.....1094
Pumps, Rotary.....1095
Barrels, Working.....838, 839
Barry Pattern Extension Stop Boxes.. 560
Bars, Extension.....1217
Towel.....189, 193, 194
Bases, Service Box..... 558
Basin Chain..... 439
Cock Couplings..... 430

Page

Basin Cocks, Compression .....362–365, ...370, 371
Cocks, Fuller..... 371
Cocks, Fuller Bracket..... 383
Cocks, Improved Fuller.....379–382
Cocks, Quick Action, Quaturn.... 372
Cocks, Self-closing..... 424
Gaskets..... 446
Plugs..... 437
Waste Washers..... 446
Wrenches, Trimo.....1267
Basins, Catch, Cast Iron..... 996
Catch, Wade..... 997
Earthenware..... 183
Bath Chain..... 439
Cock Hole Covers..... 436
Cocks, Compression.....366, 367
Cocks, Fuller.....390–392
Cocks, Ful-Pression..... 368
Cocks, Improved Fuller.....388, 389
Plug Washers..... 446
Plugs.....436, 437
Room Designs..... 1–5
Room Furnishings.....184–201
Room Scales..... 202
Rooms, Model..... 1–5
Seats.....200, 201
Stools..... 200
Supply Pipes.....393–397
Supply Pipes, Fuller.....390–392
Supply and Waste Fittings, Combination..... 399
Supply and Waste Fittings, Compression.....398, 400
Supply and Waste Fittings, Fuller 400
Traps..... 516
Traps, Diamond.....490, 505, 507
Traps and Overflows..... 402
Traps with Standing Waste..... 403
Waste Washers..... 446
Wastes, Standing..... 401
Wastes and Overflows, Connected..... 401
and Shower Fillers, Combination. 119
Baths, Enameled Iron.....87–113, 115
Foot, Enameled Iron..... 115
Foot, Solid Porcelain..... 114
Needle.....117, 118
Porcelain, Solid.....81, 82, 84–86, 114
Shower.....117–124, 126–128
Sitz, Enameled Iron..... 115
Sitz, Solid Porcelain..... 114
Solid Porcelain..... 83
Batteries, Storage, Lead, McDonald.1028
Battery Lavatories, Enameled Iron 172–174
Lavatories, Vitreous China..... 145
Beaver Die Stocks.....1245
Pipe Cutters.....1251
Pipe Threading Tools.....1245
Beaverette Die Stocks.....1245
Bed Room Fans..... 568
Beer Tubing.....1122

Page

Belt Hooks....1110
Lacing, Metallic....1110
Punches....1111
Shears....1268
Tools....1110, 1111
Belting, Leather....1107
Rubber....1108
Stitched, Canvas....1109
Belts, Thresher, Canvas....1109
Bemis and Call Pipe Wrenches....1253
Bench Pipe Vises....1258
Bending Forms, Pipe, Vanderman....1260
Pins....1271, 1272
Springs....1271
Bends, Cast Iron, Soil Pipe....524, 525, 530
Closet, Blake.... 542
Closet, Cast Iron.... 543
Lead.... 518
Pipe....1147
Pipe, Cast Iron....1139
Return, Brass....1221
Return, Brass, Finished....1222
Return, Brass, Nickel-plated....1222
Return, Cast Iron, Car Heater....1185
Return, Cast Iron, Standard....1174, 1181
Return, Malleable Iron....1160
Y, Brass....1221
Y, Brass, Finished....1222
Y, Brass, Nickel-plated....1222
Bends and Ferrules, Lead, Combination.... 519
Bernhard Sectional Boilers....896–898
Bibb Seat Dressers....1270
Bibbs, Compression....323–335
Compression, Quarter Turn....336–338
Compression, Short Pattern....339, 340
Compression, Standard....341, 344–349
Compression, Stuffing Box....342, 343
Fuller, Improved....373–377
Ground Key....321, 322
Hose, Compression....324–349, 623
Hose, Fuller....373–377
Hose, Ground Key....321, 322
Hose, Oil....1100
Oil, Compression....1101
Oil, McDonald....1100, 1101
Quick Action, Quaturn.... 372
Self-closing, Boston.... 423
Self-closing, Doherty.... 423
Self-closing, Telegraph.... 423
Sink, Quick Action, Quaturn.... 372
Wash Tray, Compression, Standard.... 350
Wash Tray, Improved Fuller.... 378
Bilge Pumps, Blakeslee....1002
Bingham Gauge Cocks....1023
Bit Brace Burring Reamers....1263
Bits, Expansive....1267
Black Asphaltum Varnish.... 950
Pipe....1142, 1143
Sheet Packing....1112
Blades, Saw, Hack, Star....1264

Page

Blake Closet Bends.... 542
Junior Floor Drains.... 485
Y Fittings.... 542
Blakeslee Bilge Pumps....1002
Jet Pumps....1002
Blind Valves, Hydraulic.... 852
Block Tin Pipe.... 521
Blocks, Chain, Hoisting....1136
Tackle, Steel....1135
Tackle, Wood....1134
Blow Torches, C & L....1273
Blow-off Catch Basins, Cast Iron.... 996
Catch Basins, Wade.... 997
Valves, Brass, Jenkins Bros.... 973
Valves, Iron Body.... 974
Valves, Iron Body, Jenkins Bros.. 973
Valves, Iron Body, Lunkenheimer 973
Blue Seal Drain Pipe Solvent.... 203
Board, Friction....1116
Mill, Asbestos.... 949
Boards, Drain, Enameled Iron.... 225
Boiler Brackets.... 467
Brushes....1024
Couplings, Malleable Iron....1163
Couplings, Range, Brass.... 433
Drain Cocks, Compression.... 359
Elbows, Malleable Iron....1163
Hangers.... 467
Heaters, Combination, Electric Weld.... 468
Stands.... 467
Tube Expanders....1025
Tube Ferrules....1152
Tubes....1151
Boiler-feed Pumps, Marsh....1003, 1004
Boilers, Direct Draft, Bros.... 895
Down-draft, Bros.... 894
Fire Box, Bros....890–895
Heating, Bernhard....896–898
Heating, Bros....890–895
Heating, Down-draft....899, 900
Heating, Ideal....899–907
Range, Galvanized....465, 466
Round, Ideal....904–907
Sectional, Bernhard....896–898
Sectional, Ideal....899–903
Bolt Rope....1133
Bolts, Expansion, Ajax....1215
Expansion, Diamond....1214
Expansion, Eustis....1215
Machine....1213
Service Box.... 558
Sink, Brass.... 489
Toggle, Diamond....1215
Urinal and Closet Stall....279, 281
Borers, Tap....1271
Boston Gauge Glass Cutters....1019
Self-closing Bibbs.... 423
Self-closing Pantry Cocks.... 425
Self-closing Stop Cocks.... 425
Spray Hose Nozzles....1126
Bottle Holders, Medicine and Toilet.. 197
Traps, Diamond.... 502

Page

Bourdon Gauges....1015
Bower Traps....516
Bowes' Hose Racks....1132
Bowls, Closet, Enameled Iron....69
Closet, Vitreous China....67, 68
Urinal, Vitreous China....274
Box Covers, Service....558
Boxes, Flour....1268
Grease....1268
Guide, Pump....889
Roadway....559
Rosin....1268
Service....558, 561
Service, North Star....562
Service, Perfection....562
Stop, Extension, Barry Pattern....560
Stop, McDonald....560
Stop Cock, Peerless....561
Wall, Radiator....913
Boxwood Dressers....1271
Braces, Plumbers'....1267
Ratchet....1267
Bracket Basin Cocks, Fuller....383
Hose Reels....1130
House Force Pumps....775
Mirrors, Bath Room....188
Shampoo Cocks, Improved Fuller 384
Swing Cocks....1070
Brackets, Boiler....467
Brass....1070
Pump, Diamond....488
Radiator....915, 920
Sink, Combination....488
Sink, Diamond....489
Tank, Expansion....943
Brake Hose, Air....1119
Branch Tees....1186
Branches, Service, Diamond....319
T, Cast Iron, Soil Pipe....526, 527, 530
T, Sewer Pipe....556, 557
V, Sewer Pipe....557
Ventilating, Cast Iron, Soil Pipe....529
Y, Cast Iron, Drainage....1230–1235
Y, Cast Iron, Extra Heavy.1184, 1205
Y, Cast Iron, Soil Pipe....528–530
Y, Cast Iron, Standard....1173, 1181
Y, Malleable Iron....1159
Y, Pipe, Cast Iron....1140
Y, Sewer Pipe....556, 557
Brass Angle Valves, Diamond....953
Angle Valves, Jenkins Bros....955, 958
Angle Valves, Safety....975
Angle Valves, Standard....951
Artesian Well Cylinders....845
Blow-off Valves, Jenkins Bros....973
Body Pump Cylinders....805–817, 825, 826
Butterfly Valves....959
Caps, Fuller....387
Check Valves, Angle, Combination 951
Check Valves, Angle, Diamond....953
Check Valves, Angle, Jenkins Bros. 956
Check Valves, Angle, Standard....952

Page

Brass Check Valves, Ball, Standard....954
Check Valves, Horizontal, Diamond....953
Check Valves, Horizontal, Jenkins Bros....956
Check Valves, Horizontal, Standard....952
Check Valves, Swing, Jenkins Bros....956
Check Valves, Swing, Standard....954
Check Valves, Vertical, Jenkins Bros....956
Check Valves, Vertical, Standard. 952
Closet Flanges....1237
Cross Valves, Jenkins Bros....955
Cross Valves, Safety....975
Cross Valves, Standard....954
Expansion Joints....998
Ferrules....434
Fittings....1221, 1222, 1224
Fittings, Fine Thread....440
Fittings, Finished....1222
Fittings, Nickel-plated....1222
Flask Traps....409
Floor Flanges....426
Gate Valves....957, 623
Gate Valves, Jenkins Bros....958
Globe Traps....407
Globe Valves, Diamond....953
Globe Valves, Jenkins Bros....955, 958
Globe Valves, Standard....951
Grease Cups....1013
Grease Cups, Neverslip....1013
Grease Cups, Star....1013
Guards for Water Gauges....1019
Jacket Drive Well Points....856, 857
Lavatory Traps....407–410
Nipples....1224
Nuts, Urinal and Closet Stall....279
Oil Cups....1012
Oil Gate Valves....1103
Pear Traps....408
Pipe....1224
Pop Safety Valves....976
Railing Fittings....1170, 1223
Range Boiler Couplings....433
Reducer Couplings, McDonald....1077
Rods, Urinal and Closet Stall....279
Safety Valves....975
Sink Bolts....489
Sink Traps....406
Slip Joint Nipples....430, 506
Slip Joints....429
Soldering Nipples....520
Steam Cocks....970
Stem Nuts, Fuller....387
Three-way Cocks....971
Throttle Valves....959
Trap Screws....434
Traps, Adjustable....410
Traps, Diamond....490
Tubing, Seamless....1224
Valves, Diamond....953

Page

Brass Valves, Extra Heavy, Jenkins Bros. 955, 956, 958
Valves, Jenkins Bros. 955, 956, 958
Valves, Jenkins Disc, Diamond .. 953
Valves, Jenkins Disc, Standard ... 954
Valves, Standard ... 951, 952, 954, 1125
Water Relief Valves 977, 978
Working Barrels 838, 839
Brass-lined Artesian Well Cylinders .. 844
Pump Cylinders 793–804, 824
Tubular Well Cylinders 843
Working Barrels 838, 839
Brewers' Hose 1119
Brewery Cord 1045
Brick Chisels 1272
Drills 1262
Bronze, Radiator 950
Bronze Ball Pump Cylinder Check Valves 832
Ball and Poppet Pump Cylinder Check Valves 827, 831
Balls 849
Powder 950
Pump Cylinder Check Valves 827
Bronzing Brushes, Radiator 945
Bros Fire Box Boilers 890–892
Brown's Adjustable Pipe Tongs 1257
Brush Holders, Tooth 196
and Comb Trays 197
Brushes, Boiler 1024
Bronzing 945
Closet 203
Flue 1024
Radiator 945
Wire 1024
Bryant Porcelain Receptacles 1043
Bubbling Cup Drinking Fountains 447–458, 463
Cups, Drinking Fountain 459–462
Buckets, Rubber, Victor 865
Building Felt, Asbestos 949
Bulbs, Tungsten 1041
Bulldog Die Stocks, Oster 1246
Bumpers, Rubber 446
Screw 446
Tack 446
Burner Pliers 1268
Burners, Garbage, Wilks 476
Gas 1072
Burring Reamers, Bit Brace 1263
Burrs, Copper 1110
Bushings, Brass 1221
Brass, Nickel-plated 1222
Cast Iron, Standard 1176, 1181
Couplng, Inlet, Vacuum Cleaner . 1057
Eccentric 1175
Hose 1123
Malleable Iron 1164
Radiator 945, 946
Solder 431
Trap 431
Butterfly Valves, Brass 959
Valves, Iron Body 959

Page

C

C & L Fire Pot Repairs 1274
Fire Pots 1273
Gasoline Torches 1273
Cabinets, Medicine 184–186
Cable, Drilling, Oil Well 1133
Rubber Covered 1046
Calculating Size and Speed of Pulleys 1286
Caldwell Hose Straps 1124
Calking Cement, Smooth-on 1118
Chisels 1272
Cotton 1116
Irons 1272
Lead 522
Candle Wick 1114
Candles, Plumbers' 1270
Canvas Stitched Belting 1109
Thresher Belts 1109
Cap Pattern Stop and Waste Cocks 284, 285
Capacities of Pump Cylinders 1283
Cape Chisels 1272
Caps, Brass 1221
Brass, Finished 1222
Brass, Fuller 387
Brass, Nickel-plated 1222
Cast Iron, Standard 1176, 1180
Drive, Malleable 848
Malleable Iron 1159
Pipe, Cast Iron 1139
Stop Box, McDonald 560
Urinal and Closet Stall 279
Vent, Cast Iron, Soil Pipe 538
Wagon, Tank 1097
Car Box Jack Screws 1137
Heater Fittings, Cast Iron 1185
Heating Hose 1119
Carts, Hose, Wirt and Knox 1129
Casing, Lap Welded 1149
Well, Badger 1150
Cast Brass Name Plates 436
Iron Car Heater Fittings 1185
Iron Catch Basins 996
Iron Ceiling Plates 934
Iron Cesspools 483
Iron Check Valves, Horizontal, Diamond 869
Iron Check Valves, Horizontal, Special 869
Iron Check Valves, Horizontal, Standard 869
Iron Check Valves, Vertical 869
Iron Closet Bends 543
Iron Couplings, Car Heater 1185
Iron Drainage Fittings 1225–1237
Iron Fittings, Extra Heavy ..... 1184, ... 1200–1211
Iron Fittings, Flanged, Extra Heavy 1200–1211
Iron Fittings, Flanged, Standard 1188–1196, 1198, 1199
Iron Fittings, Long Turn ... 1182, 1183
Iron Fittings, Screwed, Drainage 1225–1237

Page

Cast Iron Fittings, Screwed, Extra Heavy....1184
Iron Fittings, Screwed, Long Turn 1182, 1183
Iron Fittings, Screwed, Standard 1171–1176, 1178–1181
Iron Fittings, Sizes of....1181
Iron Fittings, Standard....1171–1176 ....1178–1181, 1187–1199
Iron Flanges....1187
Iron Floor Plates.... 934
Iron Grease Traps, Diamond.... 513
Iron Horizontal Check Valves.... 622
Iron Pipe....1138
Iron Pipe, Specials for....1139, 1140
Iron Pipe Cutters....1251
Iron Radiators....909–914, 916–919 921–926
Iron Roof Drains.... 484
Iron Soil Pipe.... 523
Iron Soil Pipe Fittings....524–542
Iron Tank Heaters, Dubuque.... 882
Iron Traps, Diamond 490–509, 511, 512
Castings, Smooth-on....1118
Catch Basins, Cast Iron.... 996
Basins, Wade.... 997
Ceiling Lights....1040
Plates, B. & C.... 934
Plates, Cast Iron.... 934
Cellar Drains, Automatic, Penberthy. 555
Drains, Climax.... 555
Traps.... 481
Cement, Asbestos.... 949
Elastic, Smooth-on....1118
Filler, Iron.... 203
Smooth-on....1118
Center Drills and Stems....1263
Cesspools, Cast Iron.... 483
Diamond.... 481
Stable.... 481
Willett's Pattern.... 482
Chain, Basin.... 439
Bath.... 439
Galvanized, Pump.... 865
Hopper.... 439
Jack.... 439
Plumbers' Link.... 439
Safety.... 439
Wash Tray.... 439
Chain Drills, Plumbers'....1265
Hoists, Anti-friction, Moore....1136
Hoists, Differential....1136
Hoists, Standard....1136
Pipe Tongs, Vulcan....1256
Pipe Vises, Vulcan....1256
Pipe and Fittings Tongs, Agrippa.1256
Pump Curbs, Galvanized.... 865
Pump Tubing, Galvanized.... 865
Chambers, Air.... 885
Air, Pump.... 889
Champion Hose Reels....1128
Check Valves, Brass, Angle, Combination.... 951

Page

Check Valves, Brass, Angle, Diamond 953
Valves, Brass, Angle, Jenkins Bros. 956
Valves, Brass, Angle, Standard... 952
Valves, Brass, Ball, Standard.... 954
Valves, Brass, Horizontal, Diamond.... 953
Valves, Brass, Horizontal, Jenkins Bros.... 956
Valves, Brass, Horizontal, Standard.... 952
Valves, Brass, Swing, Jenkins Bros. 956
Valves, Brass, Swing, Standard... 954
Valves, Brass, Vertical, Jenkins Bros.... 956
Valves, Brass, Vertical, Standard. 952
Valves, Cast Iron, Horizontal, Diamond.... 869
Valves, Cast Iron, Horizontal, Special.... 869
Valves, Cast Iron, Horizontal, Standard.... 869
Valves, Cast Iron, Vertical.... 869
Valves, Cylinder, Pump, Ball and Poppet, Bronze....827, 831
Valves, Cylinder, Pump, Bronze.. 827
Valves, Cylinder, Pump, Bronze Ball.... 832
Valves, Cylinder, Pump, Diamond 827, 829
Valves, Cylinder, Pump, Diamond Wing.... 830
Valves, Cylinder, Pump, Iowa. 827, 830
Valves, Cylinder, Pump, Iowa and Wing.... 830
Valves, Cylinder, Pump, Key City 829
Valves, Cylinder, Pump, Leather. 827
Valves, Cylinder, Pump, McDonald.... 827
Valves, Cylinder, Pump, Spool... 831
Valves, Cylinder, Pump, Spool Poppet.... 827
Valves, Horizontal, Cast Iron.... 622
Valves, Horizontal, Diamond..... 622
Valves, Iron Body, Angle, Jenkins Bros.... 966
Valves, Iron Body, Horizontal, Jenkins Bros.... 966
Valves, Iron Body, Horizontal, Standard.... 962
Valves, Iron Body, Swing, Jenkins Bros.... 966
Valves, Iron Body, Swing, Standard.... 962
Valves, Iron Body, Vertical, Jenkins Bros.... 966
Valves, Iron Body, Vertical, Standard.... 962
Valves, Vertical, McDonald....1096
Checks and Guides, Street Washer.... 946
Chesterton Gauge Glass Cutters.....1019
Chests, Tool, Steel....1278
Chime Whistles....1020
China Shelves.... 192

Page

China Tumblers 192
Chisels, Brick 1272
Calking 1272
Cape 1272
Cold 1272
Diamond 1272
Floor 1272
Packing 1272
Picking 1272
Round Nose 1272
Straight Joint 1272
Wood 1272
Circular Radiators 914
Cistern Covers 486
Pumps, Revolving Top 699
Clamps, Hose, Double Bolt 1124
Hose, Sherman 1124
Hose, Steam 1124
Hydrant 946
Pipe, Water 1216
Urinal and Closet Stall 280
Classification of Malleable Iron Fittings 1165–1168
Clean Sweep Traps 517
Cleaner, Closet Bowl 203
Cleaners, Closet 1266
Flue, Steam, Magic 1024
Tube 1024
Vacuum, Arco Wand 1055–1057
Vacuum, Eureka 1054
Cleanouts, Cast Iron, Soil Pipe 540
Cleanser, Enamel 203
Superior 203
Clevises, Lifting, Pipe 887
Pump Spout 870
Climax Cellar Drains 555
Compression Grease Cups 1013
Soil Pipe Test Plugs 555
Clips, Pipe, Sprinkler 1220
Clock Attachments, Heat Regulator, Honeywell 939
Attachments, Heat Regulator, Minneapolis 941
Closet Bends, Blake 542
Bends, Cast Iron 542
Bowl Cleaner 203
Bowls, Enameled Iron 69
Bowls, Vitreous China 67, 68
Brushes 203
Cleaners 1266
Combinations 6–63
Connections, Rubber 445
Flanges, Brass 1237
Flanges, Iron 1237
Floor Flange Gaskets 445
Flush Pipes, Water 66
Screw Washers 444
Screws 444
Seats 70–73
Spud Flanges 444
Spud Wrenches 1272
Stall Partitions, Water 77
Stall Trimmings 278–281

Page

Closet Stalls, Slate 80
Stalls, Steel 78, 79
Supply Pipes, Water 66
Tanks, Enameled Iron 64, 65
Tanks, Galvanized 17
Tanks, Vitreous China 64
Tanks, Wood 65
Closets, Hopper, Iron 74
Water 6–63
Cloth Insertion Sheet Packing 1112
Cloths, Wiping, Nye 1269
Coated Pipe 1142, 1143
Cock Hole Covers 436
Spout Parts, Compression 889
Spouts, Iron Body, Pump 889
Cocks, Air 1021, 1022
Ball, Compound Lever, McDonald 441
Ball, Reliable, McDonald 442
Basin, Compression 362–365, 370, 371
Basin, Fuller 371
Basin, Fuller Bracket 383
Basin, Improved Fuller 379–382
Basin, Quick Action, Quaturn ... 372
Basin, Self-closing 424
Bath, Compression 366, 367
Bath, Fuller 390–392
Bath, Ful-Pression 368
Bath, Improved Fuller 383, 389
Boiler Drain, Compression 359
Curb, Ground Key 295
Curb, Inverted Key 305–311
Curb, Minneapolis 302, 308–311
Cylinder 1022
Gas 1070–1072
Gas, McDonald 1058
Gauge 1023
Hopper, Johnson 76
Hopper, Kelly 76
Hydrant, Ground Key 304
Iron 972
Meter, Gas, McDonald 1063–1065
Meter, Union, Gas, McDonald ... 1066
Pantry, Compression 370
Pantry, Fuller 385
Pantry, Improved, Fuller 386
Pantry, Self-closing, Boston 425
Pantry, Self-closing, Doherty. ... 425
Service, Gas, McDonald 1059–1062, 1068, 1069
Shampoo, Bracket, Improved, Fuller 384
Shampoo, Compression 370, 371
Shampoo, Fuller 371
Shower, Lever Handle 425
Sill, Compression 360, 361
Steam, Brass 970
Stop, Compression 351–359
Stop, Corporation 312–318
Stop, Diamond Pattern 622
Stop, Ground Key 282–303
Stop, Inverted Key 306–311
Stop, Minneapolis 298–301
Stop, Red Top 351

Page

Cocks, Stop, Self-closing, Boston 425
Stop, Self-closing, Doherty 425
Stop and Waste, Compression 351, 352
Stop and Waste, Diamond Pattern 622
Stop and Waste, Ground Key 282–303
Stop and Waste, Inverted Key 306–311
Stop and Waste, Kelly 76
Stove, Gas, McDonald 1067, 1068
Three-way, Brass 971
Three-way, Iron Body 971
Urinal, Compression 275
Urinal, Self-closing 275
Water, Rain and Well 76
Coils, Pipe 1148
Cold Chisels 1272
Collars, Sink 489
College Flag Staffs 1141
Columns, Gauge, Water 1018
Comb and Brush Trays 197
Combination Bath Supply and Waste Fittings 399
Boiler Heaters, Electric Weld 468
Drill Shells 1263
Gas Water Heaters 468
Gauges 1018
Lavatory Supply and Waste Fittings 404
Lead Ferrules 519
Pipe Vises 1259
Pipe Vises, Vanderman 1260
Pliers 1268
Shell Drills 1263
Shelves 192
Shower and Bath Fillers 119
Sink Brackets 488
Sinks and Laundry Trays 247, 251
Sinks and Lavatories, Surgeons' 204,207
Soldering Nipples 520
Water Gauges 1015
Combinations, Closet 6–63
Common Bath Plugs 436
Flanges, Cast Iron 1187
Float Valves 871
Pipe Tongs 1257
Companion Flanges, Extra Heavy 1209, 1210
Flanges, Standard 1197, 1198
Compass Saws 1264
Compasses 1271
Compound, Pipe Joint, Diamond 1118
Pipe Joint, Graphite, Dixon's 1117
Smooth-on 1118
Compound Gauges 1015
Lever Ball Cocks, McDonald 441
Compression Basin Cocks 362–365
.....370, 371
Bath Cocks 366, 367
Bath Supply and Waste Fittings 398, 400
Bibbs 323–335
Bibbs, Quarter Turn 336–338
Bibbs, Short Pattern 339, 340

Page

Compression Bibbs, Standard 341,344–349
Bibbs, Stuffing Box 342, 343
Boiler Drain Cocks 359
Cock Spout Parts 889
Frost Hole Valves, McDonald 870
Gauge Cocks 1023
Grease Cups, Climax 1013
Handles 369
Hose Bibbs 623
Hydrant Repairs 565
Lavatory Supply and Waste Fittings 404
Oil Bibbs 1101
Pantry Cocks 370
Radiator Air Valves 932
Shampoo Cocks 370, 371
Sill Cocks 360, 361
Stop Cocks 351–359
Stop and Waste Cocks 351, 352
Urinal Cocks 275
Wash Tray Bibbs, Standard 350
Compressors, Air 625
Condensation Traps, Vacuum, Detroit 992
Conducting Hose, Water 1119
Conductor Strainers 554
Conductors, Water, McDonald 870
Connected Bath Wastes and Overflows 401
Connections, Cast Iron, Drainage ...1237
Closet, Rubber 445
Rubber, Ohliger 445
Rubber, Robb 445
Service, Diamond Branch 319
Service, Lead 319
Service, Lead Flange 320
Slip Joint 427
Urinal 276
Connections and Oil Pumps, Approved 1078, 1079
Connolly Saddle Hubs 541
Continuous Lavatory Wastes 413
Control Switch Panels, Remote 1057
Controllers, Tank 986
Copper Burrs 1110
Pantry Sinks 228–231
Rivets 1110
Coppers, Soldering 1269
Cord, Brewery 1045
Lamp 1045
Packing House 1045
Portable, Re-enforced 1045
Cordage 1133
Core Packing, Gum 1113
Packing, Rubber, Red 1113
Corner Radiators 914
Corporation Stop Cocks 312–318
Correspondence about Pumps, Suggestions Regarding 1288
Cotton, Calking 1116
Cotton Fire Hose 1120
Waste 1116
Country Club Flag Staffs 1141

Page

Couplings, Basin Cock..... 430
Boiler, Malleable Iron.....1163
Boiler, Range, Brass..... 433
Brass.....1221
Brass, Finished.....1222
Brass, Nickel-plated.....1222
Cast Iron, Car Heater.....1185
Cast Iron, Standard.....1180
Drive, Wrought Iron.....1156
Extra Heavy, Wrought Iron.....1156
Hose.....1082, 1123, 1124
Line, Wrought Iron.....1156
Malleable Iron.....1159
Pipe and Rod..... 849
Reducer..... 850
Reducer, Brass, McDonald.....1077
Reducing, Eccentric.....1175, 1180
Rod.....849–851
Tool..... 852
Tubing, Pump..... 865
Tubing, Wrought Iron.....1156
Turned..... 852
Union, Gas Cock.....1068
Union, Lead Flange..... 320
Vacuum Cleaner.....1057
Wrench, Union, McDonald.....1081
Wrought Iron.....1156
Wrought Iron, Car Heater.....1185
Covering, Pipe, Air Cell..... 948
Pipe, Asbestocel..... 948
Pipe, Magnesia..... 948
Pipe, Sectional..... 948
Pipe, Wool Felt..... 948
Covers, Box, Service..... 558
Cistern..... 486
Hole, Cock..... 436
Manhole..... 486
Roadway Box..... 559
Sewer..... 486
Trap, Cast Iron, Soil Pipe..... 541
Tray, Laundry..... 260
Vault..... 486
Cross Valves, Brass, Jenkins Bros..... 955
Valves, Brass, Safety..... 975
Valves, Brass, Standard..... 954
Valves, Iron Body, Jenkins Bros. 964, 965
Valves, Iron Body, Safety..... 975
Valves, Iron Body, Standard..... 960
Crosses, Brass.....1221
Brass, Finished.....1222
Brass, Nickel-plated.....1222
Cast Iron, Drainage.....1229
Cast Iron, Extra Heavy....1184, 1206
Cast Iron, Long Turn.....1183
Cast Iron, Soil Pipe..... 531
Cast Iron, Standard..1173, 1180, 1194
Malleable Iron.....1158
Pipe, Cast Iron.....1139
Railing, Brass.....1170, 1223
Railing, Malleable Iron....1169, 1170
Vent..... 428
Crossovers, Malleable Iron.....1159

Page

Cudell Traps..... 516
Cups, Bubbling, Drinking Fountain.. 459–462
Force.....1266
Grease, Automatic, Moon.....1013
Grease, Brass.....1013
Grease, Brass, Neverslip.....1013
Grease, Brass, Star..... 1013
Grease, Compression, Climax....1013
Grease, Ratchet, Surlok.....1013
Grease, Steel.....1013
Oil, Brass.....1012
Oil, Glass.....1010, 1011
Priming.....1012
Curb Cocks, Ground Key.....295, 302
Cocks, Inverted Key.....305–311
Cocks, Minneapolis.....302, 308–311
Pump Repairs..... 865
Curbs, Pump, Chain, Galvanized.... 865
Water Elevator.....865, 866
Curtain Pins, Shower..... 131
Rods, Shower..... 131
Curved Flue Radiators..... 914
Curves, Sewer Pipe..... 556
Cushions, Loafer..... 946
Cut Lacing.....1110
Cutter Wheels, Pipe, Nye.....1252
Cutters, Glass, Gauge.....1019
Pipe, Beaver.....1251
Pipe, Cast Iron.....1251
Pipe, Nye.....1252
Pipe, Saunders.....1251
Pipe, Three-wheel, Barnes.....1251
Pipe, Trimo.....1251
Washer.....1270
Cutters and Pliers, Belt.....1111
for Expansive Bits.....1267
Cutting Pipe.....1146
Cylinder Check Valves, Pump, Ball and Poppet, Bronze.....827, 831
Check Valves, Pump, Bronze..... 827
Check Valves, Pump, Bronze Ball. 832
Check Valves, Pump, Diamond 827, 829
Check Valves, Pump, Diamond Wing..... 830
Check Valves, Pump, Iowa....827, 830
Check Valves, Pump, Iowa and Wing..... 830
Check Valves, Pump, Key City... 829
Check Valves, Pump, Leather.... 827
Check Valves, Pump, McDonald.. 827
Check Valves, Pump, Spool..... 831
Check Valves, Pump, Spool Poppet..... 827
Cocks.....1022
Oil Pumps, Hand.....1008
Plungers..... 833
Repairs, Pump..... 828
Sand Valves, Pump, Key City.827, 829
Cylinders, Pump, All Brass..... 818–823
Pump, Brass Body..805–817, 825, 826
Pump, Brass-lined.....793–804, 824

Page

Cylinders, Pump, Capacities of 1283
Pump, Iron.....788–792
Pump, McDonald.....784–787
Pump, Sizes of.....1282
Well, Artesian.....834–836
Well, Artesian, Brass..... 845
Well, Artesian, Brass-lined..... 844
Well, Double-acting..... 837
Well, Tubular, Brass-lined 843
Well, Tubular, Eureka..... 841
Well, Tubular, Wrought Iron.... 842
Cylindrical Glasses.....1011

D

D. A. Switchboards.....1029
Damper Regulators, Low Pressure... 944
Davis Automatic Stop and Check Valves 981
Back Pressure Valves..... 980
Regulating Valves..... 982
Dayton Gas Water Heaters..... 472
Deep Well Pumps, Electric, McDonald 633
Well Working Heads..... 886
Dehn's Water Softener and Scale Removing Devices..... 697
Dental Lathe Motors..... 568
Lavatories, Vitreous China..... 182
Designs, Bath Room..... 1–5
Desk Fans.....1041
Fans, Water Motor..... 568
Desolvo..... 203
Detroit Pop Safety Valves..... 975
Radiator Valves..... 929
Sight-feed Lubricators.....1005, 1006
Steam Traps..... 992
Vacuum Traps..... 992
Devices, Pumping, Windmill, Diamond..... 884
Threading, Pipe, Adjustable.....1238
Threading, Pipe, Armstrong.1239, 1240
Threading, Pipe, Beaver.....1245
Threading, Pipe, Oster.....1246–1249
Threading, Pipe, Toledo....1242–1244
Water Softener and Scale Removing 697
Diagonal Expansion Packing.....1113
Diamond Branch Service Connections 319
Brass Valves..... 953
Cast Iron Check Valves, Horizontal 869
Cast Iron Grease Traps..... 513
Cast Iron Traps.....490–509, 511, 512
Chisels.....1272
Closet Floor Flanges..... 444
Compression Basin Cocks..... 365
Compression Sill Cocks..... 361
Drinking Fountains.....463, 464
Expansion Bolts.....1214
Float Valves..... 871
Floor Drains..... 482
Globe Bath Traps and Overflows.. 402
Horizontal Check Valves..... 622
Patent Cap Curb Cocks.....305–311
Patent Cap Stop and Waste Cocks 282, 283

Page

Diamond Pattern Stop Cocks..... 622
Pattern Stop and Waste Cocks... 622
Petroleum Piston Packing.....1096
Pipe Dogs..... 887
Pipe Holders..... 887
Pipe Joint Compound.....1118
Pump Brackets..... 488
Pump Cylinder Check Valves.... 827
Radiator Riser Fittings..... 936
Return Fittings..... 933
Shower Stall Traps..... 510
Sink Brackets..... 489
Soldering Nipples..... 432
Soldering Unions..... 432
Special Force Pumps.....760–763
Special Lift Pumps.....756–759
Special Pumps..... 753
Special Set-length Force Pumps.. 768
Special Set-length Lift Pumps.764–767
Stock Fountains..... 881
Tank Wagon Faucets.....1098, 1099
Toggle Belts.....1215
Universal Slop Sinks.....480, 481
Water Relief Valves.....621, 978
Windmill Pumping Devices..... 884
Wing Pump Cylinder Check Valves 830
Diaphragm Pumps, Barnes..... 867
Diaphragms, Pump.....1122
Rubber.....1122
Die Stocks, Adjustable, Armstrong 1239, 1240
Stocks, Adjustable, Oster.....1246
Stocks, Adjustable, Toledo..1242–1244
Stocks, Beaver.....1245
Stocks, Beaverette.....1245
Stocks, Bulldog, Oster.....1246
Stocks, Lightning.....1250
Stocks, Malleable.....1238
Stocks, Matchless, Oster.....1247
Stocks, Miller's Reversible Ratchet 1238
Stocks, Ratchet, Oster.....1246
Stocks, T-R-I-O.....1241
Dies, Adjustable, Nye.....1241
Pipe, Solid.....1238
Pipe Puller..... 853
Solid, Nye.....1241
Dies and Stocks, Pipe.....1238–1247
and Stocks, Pump Makers'.....1250
and Stocks, Tubing.....1255
Diexco Extension Drills.....1215
Differential Chain Hoists.....1136
Dining Room Fans..... 568
Dipping Tanks..... 879
Direct Draft Boilers, Bros..... 895
Discharge Pipe.....1079
Discs, Rubber, Sand Valve..... 828
Valve, Jenkins..... 955
Valve, Steam Metal..... 955
Dishes, Soap.....191, 192, 196, 197
Soap, Laundry Tray..... 260
Sponge..... 192
Dispensers, Soap, Liquid..... 199
Dividers, Wing.....1271

Page

Dixon's Flake Graphite....1117
Graphite Pipe Joint Compound...1117
Dogs, Pipe, Diamond.... 887
Doherty Self-closing Bibbs.... 423
Self-closing Pantry Cocks.... 425
Self-closing Stop Cocks.... 425
Dome Cap Compression Bibbs....323–335
Cap Compression Stop Cocks.355, 356
Door Bolts, Urinal and Closet Stall... 281
Strikes, Urinal and Closet Stall.. 281
Double Bath Cocks, Compression.366, 367
Bath Cocks, Ful-Pression.... 368
Bolt Hose Clamps....1124
Extra Strong Pipe....1143
Pantry Cocks, Fuller.... 385
Double-acting Fire Engine Pumps... 718
Fire Pumps, Horizontal....777–779
Force Pumps....716, 717
Force Pumps, Horizontal....634–638
Oil Pumps, Horizontal....1084, 1085
....1089, 1090, 1093
Tank Pumps.... 776
Well Cylinders.... 837
Down-draft Boilers, Bros.... 894
Heating Boilers....899, 900
Drain Board Mats, Ash.... 225
Board Mats, Rubber.... 225
Boards, Enameled Iron.... 225
Pipe Solvent.... 203
Drainage Fittings, Cast Iron...1225–1237
Fittings, F & W....544–553
Drains, Cellar, Automatic, Penberthy 555
Cellar, Climax.... 555
Floor, Blake Junior.... 485
Floor, Combination.... 485
Floor, Diamond.... 482
Floor, Dry Pan, Standard.... 483
Floor, Josam.... 484
Floor, Rock Island.... 485
Roof, Cast Iron.... 484
Dressers, Bibb Seat....1270
Boxwood....1271
Dressing Tables, Porcelain....180, 181
Tables and Lavatories, Combination.... 180
Drift Plugs....1271
Drifts, Pipe.... 852
Drill Holders....1262
Hose, Air....1119
Points....1262
Shells, Combination....1263
Drilling Cable, Oil Well....1133
Flanged Valves and Fittings, Price List for....1212
Flanged Valves and Fittings, Templates for....1199, 1211
Drills, Brick....1262
Center....1263
Chain, Plumbers'....1265
Extension, Diexco....1215
Pipe....1262
Reamers and Taps, Combined....1261
Shell, Combination....1263

Page

Drills, Star....1272
Stone....1262
Drills and Pumps, Sand.... 854
Drinking Fountains, Bubbling Cup
....447–463
Fountains, Enameled Iron....448, 449
....452, 454, 457, 458
Fountains, Horse....463, 464
Fountains, Iron....463, 464
Fountains, Painted Iron..450, 451, 453
Fountains, Vitreous China.... 447
....455, 456
Drive Caps, Malleable.... 848
Couplings, Wrought Iron....1156
Heads, Steel.... 848
Pipe....1145
Shoes, Malleable.... 848
Well Point Extensions.... 860
Well Points, Brass Jacket....856, 857
Well Points, Morris Perfection.... 861
Well Points, Wire-Covered.... 855
Drivers, Screw....1267
Drum Traps, Diamond....490, 506–511
Traps, Lead.... 517
Dry Pan Floor Drains, Standard.... 483
Dubuque Cast Iron Tank Heaters... 882
Float Valves.... 871
Water Relief Valves....621, 978
Duplex Oil Tank Valves, McDonald..1083
Tank Wagon Valves....1097

E

E-Z Screw Joint Well Casing....1150
Earth Augers.... 854
Earthenware Basins.... 183
Eccentric Bushings....1175
Reducing Couplings....1175, 1180
Tees....1175
Eccentrics, Fuller.... 387
Eclipse Anti-freezing Fire Hydrants
....566, 567
Eight Hooks.... 439
Ejector Repairs, Penberthy....1001
Strainers....1002
Ejectors, Penberthy....1001
XL-96, Penberthy....1001
Elastic Cement, Smooth-on....1118
Elbow Burner Cocks....1070
Elbows, Boiler, Malleable Iron....1163
Brass....1221
Brass, Fine Thread.... 440
Brass, Finished....1222
Brass, Nickel-plated....1222
Cast Iron, Car Heater....1185
Cast Iron, Drainage....1225–1228
Cast Iron, Extra Heavy....1184, 1200
....1201, 1208
Cast Iron, Long Turn....1182
Cast Iron, Standard....1171, 1172
....1178, 1188, 1189, 1196
Galvanized Iron.... 554
Malleable Iron....1157

Page

Elbows, Railing, Brass....1170, 1223
Railing, Malleable Iron....1169, 1170
Rubber.... 445
Sewer Pipe.... 556
Slip Joint.... 427
Union.... 927
Union, Malleable Iron....1163
Urinal.... 277
Electric Deep Well Pumps, McDonald 633
Fans....1041
Light Plants, McDonald....1049–1053
Light Plants, Safety First...1026, 1027 ....1029, 1030–1038
Lighting Fixtures....1039, 1040
Motors.... 629
Switches, Automatic....626–628
Water Lifts, McDonald....630–632
Weld Combination Boiler Heaters. 463
Electrical Units....1288
Elevator Tubing....1122
Elevators, Water....865, 866
Elita Self-closing Basin Cocks 424
Elliptical Tube Scrapers....1024
Emergency Steam Traps, Wright.... 991
Enamel, Radiator.... 950
Enamel Cleanser.... 203
Enameled Iron Baths....87–113, 115
Iron Closet Bowls.... 69
Iron Closet Tanks....64, 65
Iron Drain Boards.... 225
Iron Drinking Fountains....448, 449 ....452, 454, 457, 458
Iron Kitchen Sinks..211–215, 217–223
Iron Laundry Trays....251–255
Iron Lavatories....146–174, 177–179
Iron Shower Receptors.... 116
Iron Sink Backs.... 224
Iron Slop Sink Trap Standards.... 246
Iron Slop Sinks....244, 245
Iron Urinals....272, 273
Iron Wash Sinks....237, 238
Endless Rubber Belts....1108
Stitched Canvas Belting....1109
Ends, Sink, Enameled Iron.... 224
Engine Governors, Gardner....988, 989
Pumps, Fire, Double-acting.... 718
Stops, Gasoline, Automatic.... 625
Engineers' Favorite Tube Scrapers...1024
Engines, Gasoline.... 629
Kerosene.... 629
Equalized Altitude Water Gauges....1016
Eureka Regulating Valves, Kieley.... 984
Tubular Well Cylinders.... 841
Vacuum Cleaners....1054
Water Lifts.... 696
Eustis Expansion Bolts....1215
Expanders, Tube, Boiler....1025
Tube, Roller....1025
Tube, Spring....1025
Expanding Pliers, Pipe, Lead....1271
Expansion Bolts, Ajax....1215
Bolts, Diamond....1214
Bolts, Eustis....1215

Page

Expansion Joints, Brass.... 998
Joints, Iron Body.... 998
Packing, Diagonal....1113
Pipe Hangers....1218
Ring Hose Couplings....1124
Ring Packing....1113
Tank Brackets.... 943
Tank Gauges....1017
Tanks, Galvanized.... 943
Tanks, Smith's.... 943
Expansive Bits....1267
Extension Bars....1217
Drills, Diexco....1215
Pieces, Cast Iron, Soil Pipe.... 533
Pieces, Malleable Iron....1164
Pipe Hanger Bars....1217
Sections, Roadway Box.... 559
Sections, Service Box.... 558
Stop Boxes, Barry Pattern.... 560
Extensions, Well Point, Drive.... 860
Extra Heavy Bolted Force Pump Standards....685, 751–754
Heavy Bolted Lift Pump Standards.... 735
Heavy Brass Valves, Jenkins Bros. 955, 956, 958
Heavy Cast Iron Fittings....1184 1200–1211
Heavy Cast Iron Flanges....1187
Heavy Companion Flanges.1209, 1210
Heavy Couplings, Wrought Iron..1156
Heavy Iron Body Valves.... 963
Heavy Iron Body Valves, Jenkins Bros....965, 966
Heavy Set-length Force Pumps... 714
Strong Pipe....1143
Extractors, Oil and Grease, Kieley... 994

F

F. & W. Fittings....544–553
Factory Hose Carts....1129
Fans, Bed Room.... 568
Desk....1041
Desk, Water Motor.... 568
Dining Room.... 568
Electric....1041
Hospital.... 568
Office.... 568
Oscillating....1041
Residence....1041
Fasteners, Strap, Hose....1124
Faucets, Quick-action, Quaturn 372
Wagon, Tank, Diamond...1098, 1099
Feed Water, Saving of Fuel by Heating....1288
Felt, Building, Asbestos.... 949
Ferrules, Brass.... 434
Iron.... 435
Lead.... 519
Tube, Boiler....1152
Union.... 431
Fiber Sheet Packing....1112

Page

Files, Plumbers' 1267
Filler Cement, Iron 203
Fillers, Shower and Bath, Combination 119
Fine Thread Brass Fittings 440
Yarn 1133
Finished Brass Fittings 1222
Fire Box Boilers, Bros 890–895
Engine Pumps, Double-acting 718
Extinguisher Tubing 1122
Hose 1120
Hydrants, Eclipse 566, 567
Jumpers 1129
Pot Repairs 1274
Pumps, Double-acting, Horizontal 777–779
Streams, Pressure of 1287
Firepots, C & L 1273
Fireproof Floor Sleeves, Telescoping 934
Fish Twine 1133
Fisher Balanced Valves 986
Float Valves 986
Pressure Regulating Valves 983
Pump Governors 987
Reducing Valves 983
Fitall Pipe Hanger Straps 1217
Fitch Radiator Brushes 945
Fittings, Brass 1221, 1222, 1224
Brass, Fine Thread 440
Brass, Finished 1222
Brass, Nickel-plated 1222
Cast Iron, Extra Heavy 1184 1200–1211
Cast Iron, Flanged, Extra Heavy 1200–1211
Cast Iron, Flanged, Standard 1188–1198
Cast Iron, Long Turn 1182, 1183
Cast Iron, Screwed, Drainage 1225–1237
Cast Iron, Screwed, Extra Heavy 1184
Cast Iron, Screwed, Long Turn 1182, 1183
Cast Iron, Screwed, Standard 1171–1176, 1178–1181
Cast Iron, Sizes of 1181
Cast Iron, Standard ..... 1171–1176 ..... 1178–1181, 1187–1199
Drainage, Cast Iron 1225–1237
Drainage, F. & W 544–553
F. & W 544–553
Fixture, Gas 1070–1072
Flanged, Cast Iron, Extra Heavy 1201
Flanged, Cast Iron, Standard 1199
Flanged, Extra Heavy, Drilling, Templates for 1211
Flanged, Standard, Drilling, Templates for 1199
Flush Pipe 277
Heater, Car, Cast Iron 1185
Hose 1082, 1123, 1124
Malleable Iron 1157–1168, 1177
Pipe, Sewer 556, 557
Pipe, Soil, Cast Iron 524–542

Page

Fittings, Radiator Riser, Diamond 936
Railing, Adjustable 1170
Railing, Brass 1170, 1223
Railing, Malleable Iron 1169, 1170
Return, Diamond 935
Supply and Waste, Bath, Combination 399
Supply and Waste, Bath, Compression 398, 400
Supply and Waste, Bath, Fuller 400
Supply and Waste, Lavatory, Combination 404
Supply and Waste, Lavatory, Compression 404
Supply and Waste, Lavatory, Fuller 404
Tray, Laundry 260
Urinal 276, 277
Vent 428
Water Heater 471
Y, Blake 542
Fittings and Chain Pipe Tongs, Agrippa 1256
and Valves, Flanged, Price List for Drilling 1212
Fixture Fittings, Gas 1070–1072
Wire 1045
Fixtures, Lavatory Waste, Continuous 413
Lavatory Waste, Secret 405
Lighting, Electric 1039, 1040
Supply and Waste, Bath, Combination 399
Supply and Waste, Bath, Compression 398, 400
Supply and Waste, Bath, Fuller 400
Supply and Waste, Lavatory, Combination 404
Supply and Waste, Lavatory, Compression 404
Supply and Waste, Lavatory, Fuller 404
Flag Staffs, Steel 1141
Flake Graphite, Dixon's 1117
Flange Gaskets, Floor, Closet 445
Union Gaskets, McDonald 1096
Unions, Cast Iron 1177
Unions, Malleable Iron 1162, 1177
Flanged Fittings, Cast Iron, Extra Heavy 1200–1211
Fittings, Cast Iron, Standard 1188–1199
Valves and Fittings, Drilling, Templates for 1211
Valves and Fittings, Price List for Drilling 1212
Water Pipe, Cast Iron 1138
Flanges, Closet, Brass 1237
Closet, Iron 1237
Companion, Extra Heavy 1209, 1210
Companion, Standard 1197, 1198
Floor 444
Floor, Brass 426
Floor, Cast Iron 1187

Page

Flanges, Pipe, Cast Iron....1140
Railing, Brass....1223
Railing, Malleable Iron....1169, 1170
Spud, Closet.... 444
Spun.... 444
Urinal and Closet Stall.... 279
Flanges and Bells, Pipe, Cast Iron ...1140
and Spigots, Pipe, Cast Iron....1140
Flashes, Roof, Adjustable.... 554
Flask Traps, Brass.... 409
Flax Packing, Rubber Back....1115
Packing, Square....1115
Float Switches.... 628
Valve Floats.... 871
Valves, Arch Pattern.... 871
Valves, Common.... 871
Valves, Diamond.... 871
Valves, Dubuque.... 871
Valves, Fisher 986
Floats, Float Valve.... 871
Floor Chisels....1272
Drains, Blake Junior 485
Drains, Combination.... 485
Drains, Diamond.... 482
Drains, Dry Pan, Standard.... 483
Drains, Josam.... 484
Drains, Rock Island.... 485
Flange Gaskets, Closet.... 445
Flanges.... 444
Flanges, Brass.... 426
Flanges, Cast Iron....1187
Flanges, Railing, Brass....1223
Plates, B. & C.... 934
Plates, Cast Iron.... 934
Plates, Cast Iron, Soil Pipe.... 539
Sleeves, Fireproof, Telescoping... 934
Flour Boxes....1268
Flue Brushes....1024
Cleaners, Steam, Magic....1024
Flush Joint Tubing....1145
Pipe Fittings.... 277
Pipes, Water Closet.... 66
Well Points.... 858
Folding Rules....1268
Foot Baths, Enameled Iron.... 115
Baths, Solid Porcelain.... 114
Stools, Porcelain.... 181
Valves, Patent Valve.... 832
Valves and Strainers, Combined.. 868
Force Cups....1266
Pump Standards, Extra Heavy Bolted....685, 751–754
Pump Standards, Hand..739, 740, 744
Pump Standards, Heavy.... 741
Pump Standards, Windmill...742–748
Pumps, Diamond Special....760–763
Pumps, Double-acting....716, 717
Pumps, Double-acting, Electric... 630–632
Pumps, Double-acting, Horizontal 634–638
Pumps, House....769–771, 773–775
Pumps, Plumbers'....1266

Page

Force Pumps, Rack and Pinion...749, 750
Pumps, Regulator, Windmill.... 724
Pumps, Rotary, Hand.... 781
Pumps, Rotary, Power.... 780
Pumps, Set-length....712, 713, 715
Pumps, Set-length, Diamond Special.... 768
Pumps, Set-length, Extra Heavy.. 714
Pumps, Underground, Rack and Pinion.... 720
Pumps, Underground Valve, Diamond Special....762, 763
Pumps, Valve, Underground..719, 722
Pumps, Valve, Underground, Heavy.... 721
Pumps, Valve, Underground, Two-way.... 723
Pumps, Warm Climate.... 772
Pumps, Windmill, Air Compressor....682–684
Pumps and Jacks, Horizontal.... 639
Forged Steel Spanners....1077
Forms, Bending, Pipe, Vanderman...1260
Fountains, Drinking, Bubbling Cup 447–458, 463
Drinking, Enameled Iron.....448, 449 ....452, 454, 457, 458
Drinking, Horse....463, 464
Drinking, Iron....463, 464
Drinking, Painted Iron..450, 451, 453
Drinking, Vitreous China 447, 455, 456
Stock, Automatic.... 881
Frames, Saw, Hack....1264
Friction Board....1116
of Water In Pipes....1287
Friends, Plumbers'....1266
Frost Hole Valves, Compression, McDonald.... 870
Frost-proof Closets, Vogel.... 63
Fuller Balls.... 387
Basin Cocks.... 371
Basin Cocks, Improved.....379–382
Bath Cocks....390–392
Bath Cocks, Improved.....388, 389
Bath Supply Pipes....390–392
Bath Supply and Waste Fittings.. 400
Bibbs, Improved....373–377
Bracket Basin Cocks.... 383
Bracket Shampoo Cocks, Improved 384
Brass Caps.... 387
Brass Stem Nuts.... 387
Eccentrics.... 387
Handles.... 387
Lavatory Supply and Waste Fittings.... 404
Pantry Cocks.... 385
Pantry Cocks, Improved.... 386
Repairs.... 387
Shampoo Cocks.... 371
Stems and Balls.... 387
Wash Tray Bibbs, Improved.... 378
Ful-Pression Bath Cocks.... 368
Funnels, Pump Tubing.... 865

Page

Furnaces, Gasoline, C & L....1273
Melting, Lead....1276
Furnishings, Bath Room....184–201
Fusible Plugs.... 971

G

Galvanized Chain, Pump.... 865
Chain Pump Curbs.... 865
Chain Pump Tubing.... 865
Closet Tanks.... 17
Expansion Tanks.... 943
Iron Spiral Pipe.... 554
Pipe....1142, 1143
Range Boilers....465, 466
Scullery Sinks.... 239
Well Casing, Badger....1150
Garage Oil System, McDonald..1104–1106
Garbage Burners, Wilks.... 476
Garden Hose....1119, 1120
Hose Valves, Brass....1125
Gardner Engine Governors....988, 989
Gas Brackets....1070
Burners....1072
Cock Union Couplings....1068
Cocks....1070–1072
Cocks, McDonald....1058
Fixture Fittings....1070–1072
Meter Cocks, McDonald...1063–1065
Nozzles....1072
Pillars....1072
Pipe....1142, 1143
Pipe Hooks....1220
Pliers....1268
Proving Pumps....1265
Service Cocks, McDonald...1059–1062
....1068, 1069
Stove Cocks, McDonald...1067, 1068
Union Meter Cocks, McDonald..1066
Water Heaters, Combination.... 468
Water Heaters, Dayton.... 472
Water Heaters, Hoffman.... 473
Water Heaters, Humphrey.... 471
Water Heaters, Lawson....469, 470
Water Heaters, Ohio.... 472
Gasket Irons....1272
Gaskets, Basin.... 446
Flange, Floor, Closet.... 445
Rubber.... 446
Sink.... 446
Union, Flange, McDonald....1096
Gasoline Engine Stops, Automatic... 625
Engines.... 629
Furnaces, C & L....1273
Torches, C & L....1273
Water Heaters, Lawson.... 470
Gate Valves, Brass....623, 957
Valves, Brass, Jenkins Bros.... 958
Valves, Hose.... 959
Valves, Iron Body, Jenkins Bros... 969
Valves, Iron Body, Standard..967, 968
Valves, Lock, McDonald....1102
Valves, Oil, Brass....1103

Page

Gate Valves, Quick Opening.... 959
Gauge Cocks....1023
Columns, Water....1018
Glass Cutters....1019
Glass Preservers, Gilbert's....1019
Glass Washers....1019
Glasses, Scotch....1019
Siphons, Steam....1023
Gauges, Altitude....944, 1015, 1016
Ammonia....1016
Bourdon....1015
Combination....1018
Compound....1015
Hydraulic....1016
Pressure....624, 1015
Steam....1015
Tank, Expansion....1017
Traction Engine....1016
Vacuum....1015
Water....623, 1017
Water, Combination....1015
Water, Equalized Altitude....1016
Generators, Heat, Honeywell.... 937
Heat, Nefco.... 938
German Silver Pantry Sinks....228–231
Gilbert's Gauge Glass Preservers....1019
Glass Cutters, Gauge....1019
Oil Cups....1010, 1011
Preservers, Gauge, Gilbert's....1019
Shelves....190, 195
Washers, Gauge....1019
Glasses, Gauge, Scotch....1019
Oil Cup....1011
Globe Air Chamber Lavatory Supplies 414
Strainers.... 868
Traps, Brass.... 407
Valves, Brass, Diamond.... 953
Valves, Brass, Jenkins Bros...955, 958
Valves, Brass, Standard.... 951
Valves, Iron Body, Extra Heavy.. 963
Valves, Iron Body, Jenkins Bros.
....964, 965
Valves, Iron Body, Standard..960, 961
Ventilators.... 554
Water Heaters.... 908
Gouges, Wood....1272
Governors, Engine, Gardner....988, 989
Pump, Fisher.... 987
Grabler Hook Plates....1219
Grabs, Valve.... 853
Granitine Laundry Trays....258, 259
Graphite, Flake, Dixon's....1117
Pipe Joint, Compound, Dixon's....1117
Gravel Catch Basins, Cast Iron.... 996
Shoes, Badger....1150
Grease Boxes....1268
Catch Basins, Wade.... 997
Cups, Automatic, Moon....1013
Cups, Brass....1013
Cups, Brass, Neverslip....1013
Cups, Brass, Star....1013
Cups, Compression, Climax....1013

Page

Grease Cups, Ratchet, Surlok 1013
Cups, Steel.....1013
Intercepters, Jumbo 513
Traps, Cast Iron, Diamond..... 513
Traps, Diamond.....490, 512
Traps, Wade..... 997
and Oil Extractors, Kieley..... 994
Green River Screw Plates.....1250
Ground Key Bibbs.....321, 322
Key Curb Cocks.....295, 302
Key Hydrant Cocks..... 304
Key Stop Cocks.....282–303
Key Stop and Waste Cocks....282–303
Guards, Water Gauge, Brass.....1019
Guide Boxes, Pump..... 889
Plates, Pump..... 889
Guides and Checks, Street Washer... 946
Gum Core Packing.....1113
Packers, Well..... 840
Gutter Plates, McDonald..... 487

H

Hack Saw Blades, Star.....1264
Saw Frames.....1264
Half S Traps, Diamond .499–500, 503, 504
and Half Solder..... 522
Hammers, Plumbers'.....1267
Hand Cylinder Oil Pumps.....1008
Force Pump Standards..739, 740, 744
Pipe Machines, Oster.....1247
Pumps, McDonald..... 641
Rails..... 190
Rotary Force Pumps..... 781
Handle Balls, Pump..... 889
Handles, Compression..... 369
Fuller..... 387
Hydrant..... 946
Hangers, Boiler..... 467
Pipe, Adjustable.....1217
Pipe, Ball Joint, Hanna.....1219
Pipe, Expansion.....1218
Pipe, Solid Ring.....1219
Hanna Ball Joint Pipe Hangers.....1219
Hawk's Boiler Stands..... 467
Hay Rope.....1133
Head Rests and Bath Seats..... 201
Heads, Bubbling, Drinking Fountain
.....459–462
Drill, Diexco.....1215
Drive, Steel..... 848
Shower..... 129
Stuffing Box, Windmill 886
Working, Deep Well..... 886
Working, Power, Electric-Driven..633
Working, Power, McDonald..650–681
Heat Generators, Honeywell..... 937
Generators, Nefco..... 938
Regulators, Honeywell..... 942
Regulators, Minneapolis.....940, 941
Heater Fittings, Car, Cast Iron.....1185
Stands, Monitor.....1072

Page

Heaters, Boiler, Combination, Electric
Weld..... 468
Laundry..... 479
Laundry, Ideal..... 478
Monitor, Gas.....1072
Tank..... 479
Tank, Cast Iron, Dubuque..... 882
Tank, Ideal..... 478
Water, Auxiliary..... 908
Water, Gas, Combination..... 468
Water, Gas, Dayton..... 472
Water, Gas, Hoffman..... 423
Water, Gas, Humphrey..... 471
Water, Gas, Lawson.....469, 470
Water, Gas, Ohio..... 472
Water, Gasoline, Lawson..... 470
Water, Globe..... 908
Water, Little Giant..... 908
Water, Maltese..... 908
Water, Wilks.....476, 477
Heating, Indirect..... 921
Heating Boilers, Bernhard.....896–898
Boilers, Box..... 890
Boilers, Bros.....891–895
Boilers, Down-draft.....899, 900
Boilers, Ideal.....899–907
Feed Water, Saving of Fuel By...1288
Fittings, Hot Water..... 935
Hose, Car.....1119
Heavy Force Pump Standards..... 741
Set-length Pumps 705, 707–710
Underground Valve Force Pumps. 721
Hemp Packing.....1115
required for Pipe Joints, Weight of 1138
Hexagon Lock Nuts..... 850
Rod Couplings..... 849
Hide Rope.....1133
High Pressure Hydrants, McDonald.. 563
Hinges, Urinal and Closet Stall..... 280
Hitching Posts..... 560
Hoffman Gas Water Heaters..... 473
Radiator Air Valves..... 933
Hog Troughs..... 879
Hoists, Chain, Anti-friction, Moore..1136
Chain, Differential.....1136
Chain, Standard.....1136
Holders, Bottle, Medicine and Toilet. 197
Brush, Tooth..... 196
Drill.....1262
Paper, Toilet.....191, 198
Pipe, Automatic, Standard..... 887
Pipe, Diamond..... 887
Soap and Sponge..... 197
Soap and Tumbler..... 197
Tumbler.....191, 196
Tumbler and Tooth Brush...191, 192
Hole Covers, Cock..... 436
Honeywell Heat Generators..... 937
Heat Regulators..... 942
Radiator Valves..... 931
Temperature Regulators..... 939
Hook Plates.....1219
Hooks, Belt.....1110

Page

Hooks, Eight 439
Pipe, Cast Iron 539
Pipe, Gas 1220
Pipe, Soil 1220
Pipe, Wire 1220
Robe 191, 198
Shave 1271
Hopper Chain 439
Closets, Iron 74
Cocks, Johnson 76
Cocks, Kelly 76
Traps, Iron 75
Horizontal Check Valves, Brass, Diamond 953
Check Valves, Brass, Jenkins Bros. 956
Check Valves, Brass, Standard ... 952
Check Valves, Cast Iron 622
Check Valves, Diamond 622
Check Valves, Iron Body, Jenkins Bros 966
Check Valves, Iron Body, Standard 962
Double-acting Fire Pumps ... 777–779
Double-acting Force Pumps ... 634–638
Double-acting Oil Pumps ... 1084, 1085 ..... 1089, 1090, 1093
Force Pumps and Jacks 639
Tank Pumps 648
Horse Drinking Fountains 463, 464
Power Required to Raise Water, Table of 1284
Power Requirements, Table of 1285
Hose, Brake, Air 1119
Brewers' 1119
Conducting, Water 1119
Drill, Air 1119
Fire 1120
Garden 1119, 1120
Heating, Car 1119
Hydrant 1119
Mill 1120
Pump 1119
Pump, Tank 1121
Sprinkling, Street 1119
Steam 1119
Suction 1121
Vacuum Cleaner, Arco Wand 1057
Washing Deck 1119
Hose Bibbs, Compression 324–349, 623
Bibbs, Fuller 373–377
Bibbs, Ground Key 321, 322
Bibbs, Oil 1100
Bushings 1123
Carts, Wirt and Knox 1129
Clamps, Double Bolt 1124
Clamps, Sherman 1124
Clamps, Steam 1124
Cocks 1071
Couplings 1082, 1123, 1124
Fittings 1082, 1123, 1124
Gate Valves 959
Nipples 1123
Nozzles, Boston Spray 1126

Page

Hose Pipes 1126
Racks, Bowes' 1132
Racks, Wirt and Knox 1131
Reducers 1123
Reels 1128
Reels, Wirt and Knox 1130
Spanners 1082
Strap Fasteners 1124
Straps, Caldwell 1124
Valves, Garden, Brass 1125
Washers, Leather 1122
Washers, Rubber 1122
Hospital Fans 568
Lavatories, Porcelain 175
Sinks, Porcelain 206
Sinks, Vitreous China 206
Hot Water Heating Return Fittings .. 935
Water Storage Tanks 474, 475
Water Thermometers 944
House Force Pumps 769–771, 773–775
Pumps 699, 700
Service Pumps 630
Hubs, Cast Iron, Soil Pipe 538
Saddle, Connolly 541
Hump Hose Racks 1131
Humphrey Gas Water Heaters 471
Hydrant Clamps 946
Cocks, Ground Key 304
Handles 946
Hose 1119
Repairs, Compression 565
Repairs, Self-closing 565
Sockets 946
Hydrants, Fire, Eclipse 566, 567
High Pressure, McDonald 563
Pipe, McDonald 564
Wall 564
Hydraulic Blind Valves 852
Gauges 1016
Packing 1113
Packing, Rawhide 1115
Rams 782, 783

I

Ideal Heating Boilers 899–907
Laundry Heaters 478
Tank Heaters 478
Improved Fuller Basin Cocks 379–382
Fuller Bath Cocks 388, 389
Fuller Bibbs 373–377
Fuller Bracket Shampoo Cocks ... 384
Fuller Pantry Cocks 386
Fuller Wash Tray Bibbs 378
Hydraulic Rams 782, 783
Incandescent Lamps 1041
Increasers, Cast Iron, Drainage 1237
Cast Iron, Soil Pipe 532–534
Pipe, Cast Iron 1140
Sewer Pipe 556
Independent Cocks 1071
Indirect Heating 921
Radiators 921–924

Page

Information, Barometric Pressure...1282
Irrigating.....1286
Pump.....1281
Pump, McDonald..... 698
Pump Part.....1289
Radiator..... 921
Useful.....1279–1282, 1284–1288
Well Dealers.....1279, 1280
Well Drillers.....1279, 1280
Injector Repairs, Penberthy..... 999
Repairs, U. S.....1000
Strainers.....1002
Injectors, Penberthy..... 999
U. S.....1000
Inlet Connections, Urinal..... 276
Coupling Bushings, Vacuum Cleaner.....1057
Insertable Joints, Sisson..... 541
Instantaneous Water Heaters, Hoffman..... 473
Water Heaters, Humphrey..... 471
Insulators, Porcelain.....1044
Split.....1044
Interceptors, Grease, Jumbo..... 513
Inverted Key Curb Cocks.....305–311
Key Stop Cocks.....306–311
Key Stop and Waste Cocks...306–311
Iowa Pump Cylinder Check Valves 827, 830
Stock Fountains..... 881
and Wing Pump Cylinder Check Valves..... 830
Iron Body Angle Valves, Extra Heavy 963
Body Angle Valves, Jenkins Bros. 964, 965
Body Angle Valves, Safety..... 975
Body Angle Valves, Standard .960, 961
Body Back Pressure Valves..... 979
Body Blow-Off Valves..... 974
Body Blow-Off Valves, Jenkins Bros..... 973
Body Blow-Off Valves, Lunkenheimer..... 973
Body Butterfly Valves..... 959
Body Check Valves, Angle, Jenkins Bros..... 966
Body Check Valves, Horizontal, Jenkins Bros..... 966
Body Check Valves, Horizontal, Standard..... 962
Body Check Valves, Swing, Jenkins Bros..... 966
Body Check Valves, Swing, Standard..... 962
Body Check Valves, Vertical, Jenkins Bros..... 966
Body Check Valves, Vertical, Standard..... 962
Body Cock Spouts, Pump..... 889
Body Cross Valves, Jenkins Bros. 964, 965
Body Cross Valves, Safety..... 975
Body Cross Valves, Standard..... 960
Body Expansion Joints..... 998

Page

Iron Body Gate Valves, Jenkins Bros. 969
Body Gate Valves, Standard..967, 968
Body Globe Valves, Extra Heavy. 963
Body Globe Valves, Jenkins Bros. 964, 965
Body Globe Valves, Standard.960, 961
Body Pop Safety Valves..... 976
Body Safety Valves..... 975
Body Three-Way Cocks..... 971
Body Throttle Valves..... 959
Body Valves, Extra Heavy..... 963
Body Valves, Extra Heavy, Jenkins Bros.....965, 966
Body Valves, Jenkins Bros....964–966
Body Valves, Standard.....960–962
Body Water Relief Valves....977, 978
Boiler Tubes.....1151
Closet Flanges.....1237
Cocks..... 972
Drinking Fountains.....463, 464
Ferrules..... 435
Filler Cement..... 203
Hopper Closets..... 74
Hopper Traps..... 75
Pipe, Cast.....1138
Pipe, Cast, Specials for.....1139
Pump Cylinders.....788–792
Siphons.....1023
Tank Stands..... 581
Irons, Calking.....1272
Gasket.....1272
Irrigating Information.....1286
Irrigation Strainers..... 862

J

Jack Chain..... 439
Screws.....1137
Jacks, Pump.....688–692
Pump, Vertical.....686, 687
Screw.....1137
Jacks and Force Pumps, Combined .. 639
and Tank Pumps, Horizontal.... 648
Japan, Maroon..... 950
Jefferson Unions.....1161
Jenkins Bros. Brass Blow-Off Valves. 973
Bros. Brass Gate Valves..... 958
Bros. Brass Valves.....955, 956, 958
Bros. Iron Body Blow-Off Valves . 973
Bros. Iron Body Gate Valves..... 969
Bros. Iron Body Valves.....964–966
Bros. Radiator Valves..... 928
Disc Brass Valves, Diamond..... 953
Disc Brass Valves, Standard..... 954
Disc Radiator Valves..... 927
Valve Discs..... 955
Jet Pumps, Blakeslee.....1002
Johnson Hopper Cocks..... 76
Well Screens..... 864
Joint Runners, Asbestos.....1275
Tubing, Flush.....1145
Joints, Ball, Adjustable..... 129
Expansion, Brass..... 998

Page

Joints, Expansion, Iron Body 998
Insertable, Sisson..... 541
Slip..... 429
Smooth-on.....1118
Swing, McDonald.....1080
Josam Floor Drains..... 484
Jumbo Grease Intercepters..... 513
Jumpers, Fire.....1129
Junior Diamond Water Relief Valves. 621
Tank Heaters..... 478
Jute Packing.....1115
Rope.....1133

K

Kelly Hopper Cocks..... 76
Stop and Waste Cocks..... 76
Kerosene Engines..... 629
Kewanee Unions.....1162
Key City Pump Cylinder Sand Valves
.....827, 829
City Sand Valve Rubber Discs.... 828
Sockets.....1041
Keys, Service Box..... 558
Street Washer..... 946
Kieley Oil and Grease Extractors..... 994
Pressure Regulating Valves..... 984
Steam Separators..... 994
Kit Pipe Vises.....1259
Kitchen Pumps....699, 700, 769–771, 774
Sink Pump Brackets..... 488
Sinks, Enameled Iron 211–215, 217–223
Sinks, Porcelain.....208–210
Sinks, Slate.....232–236
Sinks, Vitreous China..... 210

L

Laboratory Sinks, Vitreous China.... 226
Lace Leather.....1110
Lacing, Belt, Metallic.....1110
Cut.....1110
Ladles.....1275
Lag Screws, Pump..... 889
Lamp Cord.....1045
Lamps, Incandescent.....1041
Tungsten.....1041
Lap Welded Casing.....1149
Large O. D. Pipe.....1144
Well Points..... 862
Lariat Rope.....1133
Latches, Urinal and Closet Stall..... 281
Laterals, Cast Iron, Extra Heavy....1205
Cast Iron, Standard.....1193
Lath Yarn.....1133
Laundry Heaters..... 479
Heaters, Ideal..... 478
Tray Covers..... 260
Tray Fittings..... 260
Tray Legs..... 260
Tray Soap Dishes..... 260
Tray Wastes and Traps..... 260
Trays, Enameled Iron.....251–255

Page

Laundry Trays, Granitine.....258, 259
Trays, Porcelain.....247–250
Trays, Stone, Alberene.....256, 257
Trays and Sinks, Combination 247, 251
Lavatories, Barbers', Enameled Iron
.....177–179
Barbers', Porcelain..... 176
Battery, Enameled Iron.....172–174
Battery, Vitreous China..... 145
Dental, Vitreous China..... 182
Enameled Iron.....146–174, 177–179
Hospital, Porcelain..... 175
Porcelain.....175, 176, 180
Surgeons', Porcelain..... 204
Vitreous China.....132–145, 182
Lavatories and Dressing Tables, Combination..... 180
and Sinks, Combination, Surgeons'
..... 204, 207
Lavatory Cock Hole Covers..... 436
Supplies, Air Chamber, Globe.... 414
Supplies, Air Chamber, Pear..... 415
Supply Pipes.....416–422
Supply and Waste Fittings, Combination..... 404
Supply and Waste Fittings, Compression..... 404
Supply and Waste Fittings, Fuller 404
Traps, Brass.....407–410
Traps, Diamond..... 490
Traps, Nickel-plated.....411, 412
Wastes, Continuous..... 413
Wastes, Secret..... 405
Lavigne Packless Radiator Valves.... 930
Lawn Sprinklers.....1127
Lawson Gas Water Heaters.....469, 470
Gasoline Water Heaters..... 470
Lead, Calking..... 522
Pig..... 522
Sheet..... 522
Lead Bends..... 518
Bends and Ferrules, Combination. 519
Drum Traps..... 517
Ferrules..... 519
Flange Service Connections..... 320
Flange Swedging Tools..... 320
Flange Union Couplings..... 320
Melting Furnaces.....1276
Molds.....1269
Pipe..... 521
Pipe Expanding Pliers.....1271
required for Pipe Joints, Weight of 1138
Service Connections..... 319
Soldering Nipples..... 520
Storage Batteries, McDonald.....1028
Traps.....514–516
Leather, Lace.....1110
Whang.....1110
Leather Belting.....1107
Hose Washers.....1122
Pump Cylinder Check Valves.... 827
Valves, Pump Cylinder..... 828
Washers, Cylinder Cap..... 828

Page

Leathers, Plunger, Pump Cylinder... 828
Valve, Pump Cylinder..... 828
Legs, Radiator..... 915
Tray, Laundry..... 260
Tubing, Urinal and Closet Stall.. 279
Levels, Spirit, Pocket.....1268
Spirit, Wood.....1268
Lever Handle Ground Key Bibbs.321, 322
Handle Shower Cocks..... 425
Punches.....1111
Lift Pump Standards.....725–728
Pump Standards, Extra Heavy Bolted..... 735
Pump Standards, Windmill...729–734
Pumps, Diamond Special.....756–759
Pumps, Rack and Pinion.....737, 738
Pumps, Set-length, Diamond Special.....764–767
Pumps, Set-length, Rack and Pinion.....703, 711
and Force Pumps, Rack and Pinion..... 736
Lifters, Pipe, Automatic, Standard... 887
Water..... 866
Lifting Clevises, Pipe..... 887
Tongs..... 853
and Lowering Machines, Pipe, Wrought..... 888
Lifts, Water, Electric, McDonald..630–632
Water, Eureka..... 696
Water, Triumph..... 696
Lighting Fixtures, Electric.....1039, 1040
Switches, Push Button.....1041
Lightning Die Stocks.....1250
Lights, Ceiling.....1040
Line, Whale.....1133
Line Couplings, Wrought Iron.....1156
Pipe.....1145
Linen Fire Hose.....1120
Lines, Sand.....1133
Tape.....1268
Links, Split..... 439
Liquid Soap Dispensers..... 199
Tiling..... 203
Little Giant Tubing Stocks.....1255
Giant Water Heaters..... 908
Wonder Pipe Vises.....1258
Loads, Pump Plunger, Table of.....1284
Loafer Cushions..... 946
Lock Gate Valves, McDonald.....1102
Locknut Nipples.....1146
Threads.....1146
Locknuts, Brass.....1221
Brass, Finished.....1222
Brass, Nickel-plated.....1222
Cast Iron, Standard.....1176, 1181
Hexagon..... 850
Malleable Iron.....1164
Locomotive Jack Screws.....1137
Oil Cups.....1012
Long Screws, Wrought Iron.....1156
Turn Cast Iron Fittings....1182, 1183
Low Pressure Damper Regulators.... 944

Page

Lowering and Lifting Machines, Pipe, Wrought..... 888
Lubricating Graphite, Dixon's.....1117
Lubricators, Plain.....1009
Sight-feed, Detroit.....1005, 1006
Sight-feed, O. K.....1009
Sight-feed, Swift.....1007
Lunkenheimer Iron Body Blow-off Valves..... 973

M

Machine Bolts.....1213
Machines, Pipe, Hand, Oster.....1247
Pipe, Oster.....1248, 1249
Pipe Lifting and Lowering, Wrought 888
Tapping, Water Main.....1277
Testing, Smoke.....1270
Threading, Pipe, Oster.....1247–1249
Machinists' Wrenches.....1253
Magic Steam Flue Cleaners.....1024
Magnesia Pipe Covering..... 948
Main Nipples, Wood..... 320
Malleable Die Stocks.....1238
Drive Caps..... 848
Drive Shoes..... 848
Iron Fittings.....1157–1168, 1177
Iron Flange Unions.....1162
Iron Railing Fittings.....1169, 1170
Iron Unions.....1161, 1162
Maltese Water Heaters..... 908
Manhole Covers..... 486
Manifolds.....1186
Manila Rope.....1133
Marble Urinal Stalls.....268, 270, 271
Maroon Japan..... 950
Marsh Steam Pumps.....1003, 1004
Matchless Die Stocks, Oster.....1247
Mats, Drain Board, Ash..... 225
Drain Board, Rubber..... 225
Mazda Lamps.....1041
McDonald Ball Cock Repairs..... 443
Barrel Pumps.....1094
Brass Reducer Couplings.....1077
Bubbling Cups.....459–462
Compound Lever Ball Cocks..... 441
Compression Frost Hole Valves... 870
Drinking Fountains..... 455
Drive Well Points..... 855
Duplex Oil Tank Valves.....1083
Electric Deep Well Pumps..... 633
Electric Light Plants.....1049–1053
Electric Water Lifts.....630–632
Flange Union Gaskets.....1096
Garage Oil System.....1104–1106
Gas Cocks.....1058
Gas Meter Cocks.....1063–1065
Gas Service Cocks.....1059–1062
.....1068, 1069
Gas Stove Cocks.....1067, 1068
Gas Union Meter Cocks.....1066
Hand Pumps..... 641
High Pressure Hydrants..... 563

Page

McDonald Lead Storage Batteries ...1028
Lock Gate Valves....1102
Oil Pumps....1085–1088, 1091, 1092
....1094, 1100, 1101
Pipe Hydrants.... 564
Power Pumps....641–647, 649
Power Working Heads....650–681
Power and Hand Pumps.... 640
Pump Cylinder Check Valves.827, 829
Pump Cylinders....784–787
Pump Information.... 698
Radiator Air Valves.... 932
Reliable Ball Cocks.... 442
Safety First Electric Light Plants
....1026, 1027, 1029–1038
Stair Treads.... 487
Standard Ground Key Stop Cocks 288
Stop Box Caps.... 560
Stop Boxes.... 560
Street Washers.... 564
Suction Pipe Strainers.... 868
Swing Joints....1080
Tank Wagon Valves....1097
Trench Plates.... 487
Union Wrench Couplings....1081
Vertical Check Valves....1096
Water Conductors.... 870
Water Supply System....573–624
....1047, 1048
Measuring Tapes....1268
Medicine Cabinets....184–186
and Toilet Bottle Holders.... 197
Melting Furnaces, Lead....1276
Metal, Babbitt.... 522
Metallic Belt Lacing....1110
Meter Cocks, Gas, McDonald..1063–1065
Cocks, Union, Gas, McDonald...1066
Meters, Water, Niagara.... 569
Milk Pumps, Sanitary, Power.... 781
Mill Carriage Rope....1133
Hose....1120
Millboard, Asbestos.... 949
Miller's Reversible Ratchet Stocks...1238
Mineral Wool.... 949
Minneapolis Curb Cocks....302, 308–311
Heat Regulators....940, 941
Stop Cocks....298–301
Mirrors, Bath Room....187, 188
Mixing Valves, Niedecken.... 125
Model Bath Rooms.... 1–5
Molds, Lead....1269
Solder....1269
Tack....1269
Monitor Heater Stands....1072
Heaters, Gas....1072
Moon Automatic Grease Cups....1013
Moore Anti-friction Chain Hoists....1136
Morris Perfection Drive Well Points.. 861
Motor Pumps, Water, V & K....693–695
Motors, Dental Lathe.... 568
Electric.... 629
Fan....1041
Heat Regulator, Honeywell...939, 940

Page

Motors, Sewing Machine.... 568
Telephone Generator.... 568
Water, Specialty.... 568
Mueller Pipe End Reamers....1261
Pressure Regulating Valves.... 985
Tapping Machines....1277

N

Name Plates, Cast Brass.... 434
Nason Steam Traps.... 990
Navy Oakum....1116
Needle Baths....117, 118
Nefco Heat Generators.... 938
Neptune Self-closing Basin Cocks.... 424
Nests of Saws....1264
Net Rope....1133
Neu-Wa Radiator Bushings.... 946
Never-Slip Grease Cups....1013
Rod Tongs....1257
New Century Steam Separators.... 994
Niagara Water Meters.... 569
Nickel-plated Brass Fittings....1222
Lavatory Traps....411, 412
Traps, Adjustable....411, 412
Niedecken Mixing Valves.... 125
Nipple Threading Machines, Oster...
....1248, 1249
Nipples, Brass....1224
Hose....1123
Locknut....1146
Main, Wood.... 320
Malleable Iron....1164
Pipe....1153–1155
Radiator.... 945
Slip Joint.... 430
Slip Joint, Brass.... 506
Solder.... 432
Solder, Cast Iron, Drainage....1237
Soldering.... 520
Tank....1155
Noiseless Back Pressure Valves.... 980
Non-Return Traps, Detroit.... 992
North Star Service Boxes.... 562
Norwall Radiator Air Valves.... 932
Nozzles, Gas....1072
Hose, Boston Spray....1126
Nuts, Brass, Urinal and Closet Stall... 279
Brass Stem, Fuller.... 387
Lock, Brass....1221
Lock, Brass, Finished....1222
Lock, Brass, Nickel-plated....1222
Lock, Cast Iron, Standard..1176, 1181
Lock, Hexagon.... 850
Lock, Malleable Iron....1164
Saddle, Cast Iron, Soil Pipe 539
Waste, Malleable Iron....1164
Nye Adjustable Dies....1241
Pipe Cutter Wheels....1252
Pipe Cutters....1252
Pipe Vises....1258
Solid Dies....1241
Wiping Cloths....1269

Page

O

O. D. Pipe, Large....1144
O K Sight-Feed Lubricators....1009
Oak Wood Rods.... 851
Oakum, Navy....1116
Plumbers'....1116
Oblong Stock Tanks.... 878
Office Fans.... 568
Offsets, Cast Iron, Soil Pipe.... 532
Cast Iron, Standard....1175, 1180
Ohio Gas Water Heaters.... 472
Ohliger Rubber Connections.... 445
Oil Bibbs, Compression....1101
Bibbs, McDonald....1100, 1101
Cup Glasses....1011
Cups, Brass....1012
Cups, Glass....1010, 1011
Gate Valves, Brass....1103
Pumps, Cylinder, Hand....1008
Pumps, Double-acting, Horizontal 1084, 1085, 1089, 1090, 1093
Pumps, McDonald....1085–1088 ....1091, 1092, 1094
Pumps, Rotary....1095
Pumps and Connections, Approved 1078, 1079
Separators, Triumph.... 995
Specials....1073
System, Garage, McDonald.1104–1106
Tank Valves, Duplex, McDonald.1083
Well Drilling Cable....1133
and Grease Extractors.... 994
Oilers, Railroad....1014
Steel....1014
Opal Shelves.... 195
Ornamental Radiators, Cast Iron.909–912
Oscillating Fans....1041
Oster Die Stocks....1246
Hand Pipe Machines....1247
Matchless Die Stocks....1247
Pipe Machines....1248, 1249
Pipe Threading Machines...1247–1249
Pipe Threading Tools....1246
Outfits, Electric Light, McDonald.. 1049–1053
Electric Light, Safety First..1026, 1027 1030–1032
Outlet Connections, Urinal.... 276
Overflows and Bath Plugs.... 436
and Bath Traps.... 402
and Wastes, Bath, Connected.... 401
Overhead Unloading Apparatus 1074, 1075

P

P Traps, Brass.... 406
Traps, Sewer Pipe.... 557
Pacific Bath Traps, Diamond.... 505
Packers, Gum, Well.... 840
Rubber.... 849
Well.... 840
Packing, Asbestos Metallic....1114

Page

Packing, Asbestos Rope....1114
Asbestos Wick....1114
Asbestos and Rubber-wound Cloth....1114
Candle Wick....1114
Core, Gum....1113
Core, Rubber, Red....1113
Expansion, Diagonal....1113
Flax, Rubber Back....1115
Flax, Square....1115
Hemp....1115
Hydraulic....1113
Hydraulic, Rawhide....1115
Jute....1115
Piston....1113
Piston, Petroleum, Diamond....1096
Pump, Stitched....1114
Ring....1113
Rubber Back....1113
Sheet, Asbestos Metallic....1112
Sheet, Black....1112
Sheet, Cloth Insertion....1112
Sheet, Fiber....1112
Sheet, Rainbow....1112
Sheet, Red....1112
Valve Stem, Asbestos....1114
Packing Chisels....1272
House Cord....1045
Shears....1268
Packless Radiator Valves, Detroit.... 929
Radiator Valves, Lavigne.... 930
Painted Iron Drinking Fountains.... ....450, 451, 453
Palmer Sewer Valves.... 540
Panels, Switch, Control, Remote....1057
Pantry Cocks, Compression.... 370
Cocks, Fuller.... 385
Cocks, Improved Fuller.... 386
Cocks, Self-closing, Boston.... 425
Cocks, Self-closing, Doherty.... 425
Radiators.... 914
Sinks, Copper....228–231
Sinks, German Silver....228–231
Sinks, Porcelain.... 227
Paper Holders, Toilet....191, 198
Park Flag Staffs....1141
Parmelee Pipe Wrenches....1254
Partitions, Stall, Water Closet.... 77
Parts, Ball Cock, McDonald.... 443
Cylinder, Pump.... 828
Die Stock, T-R-I-O....1241
Ejector, Penberthy....1001
Fire Pot....1274
Hydrant, Compression.... 565
Hydrant, Self-closing.... 565
Injector, Penberthy.... 999
Injector, U. S....1000
Pump.... 889
Pump, Curb.... 865
Pump, Fire Pot....1274
Service Box.... 558
Spout, Cock, Compression.... 889
Steam Trap, Nason.... 990

Page

Parts, Street Washer 565
Vacuum Cleaner, Arco Wand....1057
Patent Cap Inverted Key Curb Cocks 305–311
Valve Foot Valves..... 832
Pear Air Chamber Lavatory Supplies. 415
Traps, Brass..... 408
Pedestals, Radiator..... 915
Peerless Stop Cock Boxes..... 561
Penberthy Automatic Cellar Drains.. 555
Ejectors.....1001
Injectors..... 999
Pendent Cocks.....1071
Sockets.....1041
Perfection Service Boxes..... 562
Perkins Snap Switches.....1042
Petroleum Piston Packing, Diamond.1096
Philadelphia Hopper Closets..... 74
Picking Chisels.....1272
Pieces, Extension, Cast Iron, Soil Pipe 533
Extension, Malleable Iron.....1164
Pig Lead..... 522
Pillar Cocks.....1071
Pillars, Gas.....1072
Pin Indirect Radiators, Cast Iron..923, 924
Pinion and Rack Force Pumps....749, 750
and Rack Lift Pumps.....737, 738
and Rack Set-length Lift Pumps.. 711
and Rack Underground Force Pumps..... 720
Pins, Bending.....1271
Curtain, Shower..... 131
Turn.....1271
Pipe, Black.....1142, 1143
Brass.....1224
Coated.....1142, 1143
Cutting.....1146
Discharge.....1079
Drive.....1145
Extra Strong.....1143
Galvanized.....1142, 1143
Gas.....1142, 1143
Iron, Cast.....1138
Iron, Cast, Specials for.....1139, 1140
Lead..... 521
Line.....1145
O. D., Large.....1144
Sewer..... 554
Soil, Cast Iron..... 523
Spiral, Galvanized Iron..... 554
Steam.....1142, 1143
Suction.....1079
Threading.....1146
Tin, Block..... 521
Ventilating, Water Heater..... 471
Water.....1142, 1143
Pipe Bending Forms, Vanderman.....1260
Bends.....1147
Clamps, Water.....1216
Clips, Sprinkler.....1220
Coils.....1148
Covering, Air Cell..... 948
Covering, Asbestocel..... 948

Page

Pipe Covering, Magnesia..... 948
Covering, Sectional..... 948
Covering, Wool Felt..... 948
Cutter Wheels, Nye.....1252
Cutters, Beaver.....1251
Cutters, Cast Iron.....1251
Cutters, Nye.....1252
Cutters, Saunders.....1251
Cutters, Three-wheel, Barnes.....1251
Cutters, Trimo.....1251
Dies, Solid.....1238
Dogs, Diamond..... 887
Drifts..... 852
Drills.....1262
End Reamers, Mueller.....1261
Expanding Pliers, Lead.....1271
Fittings, Sewer.....556, 557
Fittings, Soil, Cast Iron.....524–542
Fuller Dies..... 853
Hanger Straps.....1217
Hangers, Adjustable.....1217
Hangers, Ball Joint, Hanna.....1219
Hangers, Expansion.....1218
Hangers, Solid Ring.....1219
Holders, Automatic, Standard.... 887
Holders, Diamond..... 887
Hooks, Cast Iron..... 539
Hooks, Gas.....1220
Hooks, Soil.....1220
Hooks, Wire.....1220
Hydrants, McDonald..... 564
Joint Compound, Diamond.....1118
Joint Compound, Graphite, Dixon's.....1117
Lifters, Automatic, Standard..... 887
Lifting Clevises..... 887
Lifting and Lowering Machines, Wrought..... 888
Machines, Hand, Oster.....1247
Machines, Oster.....1248, 1249
Nipples.....1153–1155
Pullers..... 853
Reamers.....852, 1261
Rests, Cast Iron..... 539
Saddles, Steam.....1216
Stocks and Dies.....1238–1247
Strainers, Suction, McDonald.... 868
Strainers, Water, Service..... 985
Straps, Tinned.....1220
Taps.....1261
Test Plugs, Soil..... 555
Threading Machines, Oster.1247–1249
Threading Tools, Adjustable.....1238
Threading Tools, Armstrong 1239, 1240
Threading Tools, Beaver.....1245
Threading Tools, Toledo....1242–1244
Tongs, Adjustable, Brown's.....1257
Tongs, Chain, Vulcan.....1256
Tongs, Common.....1257
Vises, Bench.....1258
Vises, Chain, Vulcan.....1256
Vises, Combination.....1259
Vises, Combination, Vanderman..1260

Page

Pipe Vises, Kit....1259
Vises, Little Wonder....1258
Vises, Nye....1258
Vises, Pocket....1258
Vises, Standard....1259
Vises, Strap....1257
Vises, Vanderman....1260
Wrenches, Bemis and Call....1253
Wrenches, Parmelee....1254
Wrenches, Stillson....1253
Wrenches, Trimo....1253
and Rod Couplings.... 849
Pipes, Flush, Water Closet.... 66
Hose....1126
Supply, Bath....393–397
Supply, Bath, Fuller....390–392
Supply, Lavatory....416–422
Supply, Water Closet.... 66
Piston Packing....1113
Packing, Petroleum, Diamond....1096
Pitcher Spout Pumps.... 700
Plants, Electric Light, McDonald....
....1049–1053
Electric Light, Safety First.1026, 1027
....1029–1038
Plates, Ceiling, B. & C.... 934
Ceiling, Cast Iron.... 934
Floor, B. & C.... 934
Floor, Cast Iron.... 934
Floor, Cast Iron, Soil Pipe.... 539
Guide, Pump.... 889
Hook....1219
Name, Cast Brass.... 436
Screw, Green River....1250
Trench, McDonald.... 487
Play Ground Flag Staffs....1141
Pliers, Burner....1268
Combination....1268
Expanding, Pipe, Lead....1271
Gas....1263
Pliers and Cutters, Belt....1111
Plug Washers, Bath.... 446
Plugs, Basin.... 437
Bath....436, 437
Brass....1221
Brass, Finished....1222
Brass, Nickel-plated....1222
Cast Iron, Soil Pipe.... 538
Cast Iron, Standard....1176, 1180
Drift....1271
Fusible.... 971
Pipe, Cast Iron....1139
Radiator.... 945
Sink.... 437
Tap, Rapid....1265
Test, Pipe, Soil.... 555
Tray, Wash.... 260
Wash Tray.... 437
Plumbers' Candles....1270
Friends....1266
Link Chain.... 439
Oakum....1116
Shears....1268

Page

Plumbers' Snips....1263
Tools....1264–1271
Plunger Leathers, Pump Cylinder.... 828
Plungers, Cylinder.... 833
Pocket Pipe Vises....1258
Spirit Levels....1268
Points, Drill....1262
Well, Drive, Brass Jacket....856, 857
Well, Drive, Morris Perfection.... 861
Well, Drive, Wire-covered 855
Well, Flush.... 858
Well, Large.... 862
Well, Tubular.... 858
Well, Washer.... 859
Pop Safety Valves, Brass.... 976
Safety Valves, Detroit.... 975
Safety Valves, Iron Body.... 976
Porcelain Baths, Solid..81, 82, 84–86, 114
Dressing Tables....180, 181
Foot Stools.... 181
Hospital Sinks.... 206
Insulators....1044
Kitchen Sinks....208–210
Laundry Trays....247–250
Lavatories....175, 176, 180
Pantry Sinks.... 227
Receptacles, Bryant....1043
Shower Receptors.... 116
Slop Sinks....240, 243
Surgeon's Lavatories.... 204
Tubes....1044
Urinal Stalls....261–263, 265, 266
Portable Cord, Re-enforced....1045
Posts, Hitching.... 560
Pots, Fire, C & L....1273
Pouring....1275
Solder....1275
Poultry Fountains, Automatic.... 881
Pouring Pots....1275
Powder, Bronze.... 950
Power Oil Pumps, MacDonald..1091, 1092
Pumps, McDonald....641–647, 649
Rotary Force Pumps.... 780
Sanitary Milk Pumps.... 781
Working Heads, Electric-driven .. 633
Working Heads, McDonald...650–681
and Hand Pumps, McDonald.... 640
Premier Tank Heaters.... 478
Preservers, Glass, Gauge, Gilbert's...1019
Pressed Steel Unions, Rockwood....1161
Pressure Gauges....624, 1015
Regulating Valves, Davis.... 982
Regulating Valves, Fisher.... 983
Regulating Valves, Kieley.... 984
Regulating Valves, Mueller.... 985
Switches, Automatic....626, 627
Priming Cups....1012
Private Building Flag Staffs....1141
Public Building Flag Staffs....1141
Pullers, Pipe.... 853
Pulleys, Size and Speed of, Rules for
Finding....1286
Pulls, Door, Urinal and Closet Stall... 281

Page

Pump Brackets, Diamond 488
Correspondence, Suggestions Regarding 1288
Curbs, Chain, Galvanized 865
Cylinder Check Valves, Ball and Poppet, Bronze 827, 831
Cylinder Check Valves, Bronze ... 827
Cylinder Check Valves, Bronze Ball 832
Cylinder Check Valves, Diamond 827, 829
Cylinder Check Valves, Diamond Wing 830
Cylinder Check Valves, Iowa .. 827, 830
Cylinder Check Valves, Iowa and Wing 830
Cylinder Sand Valves, Key City 827, 829
Cylinder Check Valves, Leather ... 827
Cylinder Check Valves, McDonald 827
Cylinder Check Valves, Spool 831
Cylinder Check Valves, Spool Poppet 827
Cylinder Repairs 828
Cylinder Sand Valves, Key City ... 829
Cylinders, All Brass 818–823
Cylinders, Brass Body ..... 805–817, ... 825, 826
Cylinders, Brass-lined 793–804, 824
Cylinders, Capacities of 1283
Cylinders, Iron 788–792
Cylinders, McDonald 784–787
Cylinders, Sizes of 1282
Diaphragms 1122
Governors, Fisher 987
Hose 1119
Hose, Tank 1121
Information 1281
Information, McDonald 698
Jacks 688–692
Jacks, Vertical 686, 687
Packing, Stitched 1114
Part Information 1289
Plunger Loads, Table of 1284
Pressure Switches 626, 627
Repairs 889
Repairs, Curb 865
Rod Lock Nuts 850
Rods, Steel 851
Rods, Wood 851
Spout Clevises 870
Standards, Force, Extra Heavy Bolted 685, 751–754
Standards, Force, Hand . 739, 740, 744
Standards, Force, Heavy 741
Standards, Force, Windmill ... 742–748
Standards, Lift 725–728
Standards, Lift, Extra Heavy Bolted 735
Standards, Lift, Windmill 729–734
Stands, Adjustable 883
Tubing, Chain, Galvanized 865
Tubing Couplings 865

Page

Pump Valves, Rubber 1122
Pumping Devices, Windmill, Diamond 884
Pumpmakers' Stocks and Dies 1250
Pumps, Air 624
Barrel, McDonald 1094
Barrel, Rotary 1095
Bilge, Blakeslee 1002
Boiler Feed, Marsh 1003, 1004
Chain, Galvanized 865
Cistern, Revolving Top 699
Deep Well, Electric, McDonald ... 633
Diamond Special 755
Diaphragm, Barnes 867
Engine, Fire, Double-acting 718
Fire, Double-acting, Horizontal 777–779
Force, Diamond Special 760–763
Force, Double-acting 716, 717
Force, Double-acting, Electric . 630–632
Force, Double-acting, Horizontal 634–638
Force, Horizontal 639
Force, House 769–771, 773–775
Force, Plumbers' 1266
Force, Rack and Pinion 749, 750
Force, Regulator, Windmill 724
Force, Rotary, Hand 781
Force, Rotary, Power 780
Force, Set-length 712, 713, 715
Force, Set-length, Diamond Special 768
Force, Set-length, Extra Heavy ... 714
Force, Underground, Rack and Pinion 720
Force, Underground Valve, Diamond Special 762, 763
Force, Valve, Underground 719, 722
Force, Valve, Underground, Heavy 721
Force, Valve, Underground, Two-way 723
Force, Warm Climate 772
Force, Windmill, Air Compressor 682–684
Gas Proving 1265
Hand, McDonald 641
House 699, 700
House Service 630
Jet, Blakeslee 1002
Kitchen 699, 700, 769–771, 774
Lift, Diamond Special 756–759
Lift, Rack and Pinion 737, 738
Lift, Set-length, Diamond Special 764–767
Lift, Set-length, Rack and Pinion 703, 711
Lift and Force, Rack and Pinion ... 736
Milk, Sanitary, Power 781
Motor, Water, V & K 693–695
Oil, Cylinder, Hand 1008
Oil, Double-acting, Horizontal 1089, 1090, 1093, 1094
Oil, McDonald . 1085–1088, 1091, 1092, ... 1094
Oil, Rotary 1095
Pitcher Spout 700

Page

Pumps, Power, McDonald . . . 641–647, 649
Power and Hand, McDonald 640
Sand 854
Set-length, Adjustable Base 706
Set-length, Heavy 705, 707–710
Set-length, Shallow Well . . 701, 702, 704
Set-length, Windmill 710
Steam, Marsh 1003, 1004
Tank 634–638, 640
Tank, Double-acting 776
Tank, Horizontal 648
Water, Eureka 696
Water, Triumph 696
Pumps and Oil Connections, Approved 1078, 1079
Punches, Belt 1111
Lever 1111
Socket 1111
Spring 1111
Push Button Lighting Switches 1041
Button Switches 1041

Q

Quarter Turn Compression Basin Cocks 364
Turn Compression Bibbs 336–338
Quaturn Quick Action Bibbs 372
Quick Action Bibbs, Quaturn 372
Quick-Opening Angle Valves, Brass, Jenkins Bros 958
Gate Valves 959
Globe Valves, Brass, Jenkins Bros 958
Throttle Valves 957, 1103

R

Rack and Pinion Double-acting Force Pumps 638
and Pinion Force Pumps 749, 750
and Pinion Lift Pumps 737, 738
and Pinion Lift and Force Pumps . . 736
and Pinion Set-length Lift Pumps 703, 711
and Pinion Underground Force Pumps 720
Racks, Hose, Bowes' 1132
Hose, Wirt and Knox 1131
Radiator Air Valves 932, 933
Brackets 915, 920
Bronze 950
Brushes 945
Bushings 945, 946
Enamel 950
Information 921
Legs 915
Nipples 945
Pedestals 915
Plugs 945
Riser Fittings, Diamond 936
Saddles 915
Shields 945

Page

Radiator Valves 929–931
Valves, Jenkins Bros 928
Valves, Jenkins Disc 927
Valves, Packless, Lavigne 930
Wall Boxes 913
Washers 945
Radiators, Cast Iron . . . . 909–914, 916–919, ... 921–926
Circular 914
Corner 914
Curved Flue 914
Indirect 921–924
Ornamental, Cast Iron 909–912
Pantry 914
Vento, Cast Iron 925, 926
Wall, Cast Iron 916–920
Window 913
Railing Fittings, Adjustable 1170
Fittings, Brass 1170, 1223
Fittings, Malleable Iron 1169, 1170
Railroad Oilers 1014
Rails, Hand 190
Rain and Well Water Cocks 76
Rainbow Sheet Packing 1112
Range Boiler Couplings, Brass 433
Boilers, Galvanized 465, 466
Rams, Hydraulic 782, 783
Rapid Tap Plugs 1265
Ratchet Attachments, Armstrong . . . 1240
Braces 1267
Die Stocks, Oster 1246
Grease Cups, Surlok 1013
Stocks, Reversible, Miller's 1238
Rawhide Hydraulic Packing 1115
Reamers, Burring, Bit Brace 1263
Pipe 852, 1261
Pipe End, Mueller 1261
Receptacles, Porcelain, Bryant 1043
Receptors, Shower, Enameled Iron . . . 116
Shower, Porcelain 116
Red Metal Ground Key Hydrant Cocks 304
Metal Ground Key Stop Cocks . 288–303
Rubber Core Packing 1113
Sheet Packing 1112
Top Stop Cocks 351
Reducer Couplings 850
Couplings, Brass, McDonald 1077
Reducers, Cast Iron, Extra Heavy 1207
Cast Iron, Soil Pipe 538
Cast Iron, Standard 1176, 1195
Hose 1123
Malleable Iron 1159
Pipe, Cast Iron 1140
Sewer Pipe 556
Reducing Companion Flanges, Extra Heavy 1210
Companion Flanges, Standard 1198
Couplings, Cast Iron, Standard . . . 1180
Couplings, Eccentric 1175, 1180
Crosses, Malleable Iron 1158
Elbows, Cast Iron, Standard . 1171, 1172
Elbows, Malleable Iron 1157
Laterals, Cast Iron, Extra Heavy . . 1205

Page

Reducing Laterals, Cast Iron, Standard....1193
Tees, Cast Iron, Standard....1172
Tees, Malleable Iron....1158
Valves, Fisher....983
Reed Strap Wrenches....1255
Reels, Hose....1128
Hose, Wirt and Knox....1130
Re-enforced Portable Cord....1045
Registers....947
Regulating Valves, Davis....982
Valves, Pressure, Davis....982
Valves, Pressure, Fisher....983
Valves, Pressure, Kieley....984
Valves, Pressure, Mueller....985
Regulator Force Pumps, Windmill....724
Regulators, Damper, Low Pressure....944
Heat, Honeywell....942
Heat, Minneapolis....940, 941
Temperature, Honeywell....939
Reliable Ball Cocks, McDonald....442
Relief Valves, Water, Brass....977, 978
Valves, Water, Diamond....621, 978
Valves, Water, Dubuque....921, 978
Valves, Water, Iron Body....977, 978
Valves, Water, Junior Diamond....921
Remote Control Switch Panels....1057
Repairs, Ball Cock, McDonald....443
Cylinder, Pump....828
Die Stock, T-R-I-O....1241
Ejector, Penberthy....1001
Fire Pot....1274
Fuller....387
Hydrant, Compression....565
Hydrant, Self-closing....565
Injector, Penberthy....999
Injector, U.S....1000
Pump....889
Pump, Curb....865
Pump, Fire Pot....1274
Service Box....558
Spout, Cock, Compression....889
Steam Trap, Nason....990
Street Washer....565
Vacuum Cleaner, Arco Wand....1057
Requirements, Horse Power, Table of.1285
Residence Fans....1041
Rests, Pipe, Cast Iron....539
Rod....946
Return Bends, Brass....1221
Bends, Brass, Finished....1222
Bends, Brass, Nickel-plated....1222
Bends, Cast Iron, Car Heater....1185
Bends, Cast Iron, Standard..1174, 1181
Bends, Malleable Iron....1160
Fittings, Diamond....935
Reversible Ratchet Stocks, Miller's....1238
Revolving Top Cistern Pumps....699
Top Set-length Pumps....702, 704
Reznor Wire Pipe Hooks....1220
Ring Packing....1113
Rings, Bottom, Pump Tubing....865
Shower, Shoulder....130

Page

Rival Drum Traps, Diamond....507, 508
Rivets, Copper....1110
Roadway Boxes....559
Robb Rubber Connections....445
Robe Hooks....191, 198
Rock Island Floor Drains....485
Rockwood Pressed Steel Unions....1161
Rococo Window Radiators....913
Rod Couplings....850, 851
Couplings, Hexagon....849
Rests....946
Tongs, Never-Slip....1257
and Pipe Couplings....849
Rods, Brass, Urinal and Closet Stall....279
Curtain, Shower....131
Pump, Steel....851
Pump, Wood....851
Roller Towel Bars....193
Tube Expanders....1025
Roof Drains, Cast Iron....484
Flashes, Adjustable....554
Rooms, Bath, Model....1–5
Rope, Asbestos....1114
Bale....1133
Bolt....1133
Hay....1133
Hide....1133
Jute....1133
Lariat....1133
Manila....1133
Mill Carriage....1133
Net....1133
Sisal....1133
Steamship Wheel....1133
Tarred....1133
Transmission, Manila....1133
Untarred....1133
Yacht....1133
Rosin Boxes....1268
Rotary Barrel Pumps....1095
Force Pumps, Hand....781
Force Pumps, Power....780
Rough Brass Fittings....1221
Round Boilers, Ideal....904–907
Leather Belts....1107
Nose Chisels....1272
Stock Tanks....875
Wood Tanks....872–874
Rubber Back Flax Packing....1115
Back Packing....1113
Balls....387, 849
Belting....1108
Buckets, Victor....865
Bumpers....446
Closet Connections....445
Connections, Ohliger....445
Connections, Robb....445
Core Packing, Red....1113
Covered Wire and Cable....1046
Diaphragms....1122
Discs, Sand Valve....828
Drain Board Mats....225
Elbows....445

Page

Rubber Gaskets 446
Hose Washers 1122
Packers 849
Pump Valves 1122
Shears 1268
Stems and Balls 387
Stoppers 437
Tank Balls 445
Tubing 1122
Valve Balls 1122
Waste Washers 446
Rules, Folding 1268
Runners, Joint, Asbestos 1275
Running Traps, Diamond 501
Traps, Sewer Pipe 557

S

S Traps, Brass 406
Traps, Cast Iron Drainage 1236
Traps, Sewer Pipe 557
Wrenches, Adjustable, Westcott 1254
Saddle Hubs, Cast Iron, Soil Pipe 539
Hubs, Connolly 541
Saddles, Pipe, Steam 1216
Radiator 915
Safety Chains 439
First Electric Light Plants 1026, 1027, 1029–1038
Valves, Brass 975
Valves, Iron Body 975
Valves, Pop, Brass 976
Valves, Pop, Detroit 975
Valves, Pop, Iron Body 976
Sand Lines 1133
Pumps 854
Valves, Cylinder, Pump, Key City 827, 829
Sani-Flush 203
Sanitary Milk Pumps, Power 781
Saunders Pipe Cutters 1251
Saw Blades, Hack, Star 1264
Frames, Hack 1264
Saws, Compass 1264
Hack 1264
Nests of 1264
Scale Removing and Water Softener Devices 697
Scales, Bath Room 202
School Flag Staffs 1141
Scotch Gauge Glasses 1019
Scrapers, Tube, Elliptical 1024
Tube, Engineers' Favorite 1024
Screens, Well, Johnson 864
Screw Bumpers 446
Plates, Green River 1250
Washers, Closet 444
Screwdrivers 1267
Screwed Fittings, Cast Iron, Drainage 1225–1237
Fittings, Cast Iron, Extra Heavy 1184
Fittings, Cast Iron, Long Turn 1182, 1183

Page

Screwed Fittings, Cast Iron, Standard 1171–1176, 1178–1181
Screws, Brass Trap 434
Closet 444
Jack 1137
Lag, Pump 889
Long, Wrought Iron 1156
Scullery Sinks, Galvanized 239
Seals, Well 849
Seamless Boiler Tube Ferrules 1152
Brass Tubing 1224
Seating Tools, Well 840
Seats, Bath 200, 201
Closet 70–73
Sink, Adjustable 216
Sebco Star Drills 1262
Secret Lavatory Wastes 405
Sectional Boilers, Bernhard 896–898
Boilers, Ideal 899–903
Pipe Covering 948
Ring Packing 1113
Sections, Extension, Roadway Box 559
Extension, Service Box 558
Selected Yarn 1133
Self-Closing Basin Cocks 424
Bibbs, Boston 423
Bibbs, Doherty 423
Bibbs, Telegraph 423
Hopper Cocks, Kelly 76
Hydrant Repairs 565
Pantry Cocks, Boston 425
Pantry Cocks, Doherty 425
Stop Cocks, Boston 425
Stop Cocks, Doherty 425
Urinal Cocks 275
Self-locking Tank Wagon Faucets, Diamond 1098
Separating Traps, Detroit 992
Separators, Oil, Triumph 995
Steam, Austin 993
Steam, Kieley 994
Steam, Victor 995
Septic Tank System, Steel, Andrews 570, 571
Tanks, Steel 572
Service Boxes 558, 561
Boxes, North Star 562
Boxes, Perfection 562
Cocks, Gas, McDonald 1059–1062, 1068, 1069
Connections, Diamond Branch 319
Connections, Lead 319
Connections, Lead Flange 320
Water Pipe Strainers 985
Set-length Force Pumps 712, 713, 715
Force Pumps, Diamond Special 768
Force Pumps, Extra Heavy 714
Lift Pumps, Diamond Special 764–767
Lift Pumps, Rack and Pinion 703, 711
Pumps, Adjustable Base 706
Pumps, Heavy 705, 707–710
Pumps, Shallow Well 701, 702, 704
Pumps, Windmill 710

Page

Sewage Tank System....570–572
Sewer Covers.... 486
Pipe.... 556
Pipe Fittings....556, 557
Valves, Palmer.... 540
Sewing Machine Motors.... 568
Shallow Well Set-length Pumps....701, ...702, 704
Shampoo Cocks, Bracket, Improved, Fuller.... 384
Cocks, Compression....370, 371
Cocks, Fuller.... 371
Sprinklers.... 130
Shave Hooks....1271
Shears, Belt....1268
Packing....1268
Plumbers'....1263
Rubber....1263
Sheet Lead.... 522
Packing, Asbestos Metallic....1112
Packing, Black....1112
Packing, Cloth Insertion....1112
Packing, Fiber....1112
Packing, Rainbow....1112
Packing, Red....1112
Shell Drills, Combination....1263
Shells, Drill, Combination....1263
Shelves, China.... 192
Combination.... 192
Glass....190, 195
Opal.... 195
Sherman Hose Clamps....1124
Shields, Expansion Bolt....1214
Radiator.... 945
Shoes, Drive, Malleable.... 848
Gravel, Badger....1150
Short Pattern Compression Bibbs..339, 340
S Traps, Diamond....494, 495
Shoulder Shower Rings.... 130
Shower Baths....117–124, 126–128
Cocks, Lever Handle.... 425
Curtain Pins.... 131
Curtain Rods.... 131
Heads.... 129
Receptors, Enameled Iron.... 116
Receptors, Porcelain.... 116
Rings, Shoulder.... 130
Stall Traps, Diamond.... 510
Thermometers.... 131
Valves.... 131
and Bath Fillers, Combination.... 119
Showers, Electric....1039, 1040
Spray.... 130
Showers with Offset Arms and Ball Joints.... 130
Sight-Feed Glass Oil Cups....1010, 1011
Lubricators, Detroit....1005, 1006
Lubricators, O K....1009
Lubricators, Swift....1007
Sill Cocks, Compression....360, 361
Simplex Tank Wagon Valves....1097
Sink Backs, Enameled Iron.... 224
Bibbs, Quick Action, Quaturn.... 372

Page

Sink Bolts, Brass.... 489
Brackets, Combination.... 488
Brackets, Diamond.... 489
Cock Hole Covers.... 436
Collars.... 489
Gaskets.... 446
Plugs.... 437
Seats, Adjustable.... 216
Strainers.... 489
Traps, Brass.... 406
Traps, Diamond....490–500
Sinks, Hospital, Porcelain.... 206
Hospital, Vitreous China.... 206
Kitchen, Enameled Iron....211–215, ...217–223
Kitchen, Porcelain....208–210
Kitchen, Slate....232–236
Kitchen, Vitreous China.... 210
Laboratory, Vitreous China.... 226
Pantry, Copper....228–231
Pantry, German Silver....228–231
Pantry, Porcelain.... 227
Scullery, Galvanized.... 239
Slop, Diamond Universal.... 481
Slop, Enameled Iron....244, 245
Slop, Porcelain....240, 243
Slop, Universal, Diamond.... 480
Slop, Vitreous China....241, 242
Surgeons', Vitreous China.... 205
Wash, Enameled Iron....237, 238
Sinks and Laundry Trays, Combination....247, 251
and Lavatories, Combination, Surgeons'....204, 207
Siphon Valve Washers.... 445
Siphons, Gauge, Steam....1023
Iron....1023
Sisal Rope....1133
Sisson Insertable Joints.... 541
Sitz Baths, Enameled Iron.... 115
Baths, Solid Porcelain.... 114
Sizes and Speeds of Pulleys, Rules for 1286
of Cast Iron Fittings....1181
of Pump Cylinders....1282
Slants, Sewer Pipe.... 557
Slate Kitchen Sinks....232–236
Urinal Stalls....268–271
Water Closet Stalls.... 80
Sleeves, Cast Iron, Soil Pipe.... 538
Floor, Fireproof, Telescoping.... 934
Pipe, Cast Iron....1139, 1140
Sliding Tongs.... 853
Slip Joint Connections.... 427
Joint Nipples.... 430
Joint Nipples, Brass.... 506
Joint Washers.... 446
Joints.... 429
Slop Sink Trap Standards, Enameled Iron.... 246
Sinks, Diamond Universal.... 481
Sinks, Enameled Iron....244, 245
Sinks, Porcelain....240, 243
Sinks, Vitreous China....241, 242

Page

Slop Sinks, Universal, Diamond..... 480
Smith's Expansion Tanks 943
Smoke Testing Machines.....1270
Smooth-On Compound 1118
Snap Switches, Perkins.....1042
Snips, Plumbers'.....1268
Soap Dishes.....191, 192, 196, 197
Dishes, Laundry Tray..... 260
Dispensers, Liquid..... 199
and Sponge Holders..... 197
and Tumbler Holders..... 197
Soapstone Laundry Trays, Alberene. 256
Socket Head Stop and Waste Cocks.. .....286, 287
Punches.....1111
Sockets, Hydrant..... 946
Pendent.....1041
Soil Pipe, Cast Iron..... 523
Pipe Fittings, Cast Iron.....524–542
Pipe Hooks.....1220
Pipe Test Plugs..... 555
Solder, Half and Half..... 522
Wiping..... 522
Solder Bushings..... 431
Molds.....1269
Nipples..... 432
Nipples, Cast Iron, Drainage.....1237
Pots.....1275
Unions..... 432
Soldering Coppers.....1269
Nipples, Combination..... 520
Solid Dies, Nye.....1241
Pipe Dies.....1238
Porcelain Baths.....81–86, 114
Porcelain Urinal Stalls..... 264
Ring Pipe Hangers.....1219
Solvent, Drain Pipe..... 203
Spanners, Forged Steel.....1077
Hose.....1082
Special Cast Iron Check Valves, Horizontal..... 869
Dome Cap Compression Bibbs.323–335
Dome Cap Stop Cocks.....355, 356
Force Pumps, Diamond.....760–763
Lift Pumps, Diamond.....756–759
Pipe Cut to Order.....1146
Pumps, Diamond..... 755
Set-length Force Pumps, Diamond 768
Set-length Lift Pumps, Diamond 764–767
Specials, Oil.....1073
Specials for Cast Iron Pipe.....1139, 1140
Specialty Water Motors..... 568
Spigots and Flanges, Pipe, Cast Iron..1140
Spiral Pipe, Galvanized Iron 554
Spirit Levels, Pocket.....1268
Levels, Wood.....1268
Split Insulators.....1044
Links..... 439
Sponge Dishes..... 192
and Soap Holders..... 197
Spool Poppet Pump Cylinder Check Valves..... 827

Page

Spool Pump Cylinder Check Valves.. 831
Spout Parts, Cock, Compression..... 889
Spouts, Cock, Iron Body, Pump..... 889
Pump..... 889
Spray Showers..... 130
Spring Punches.....1111
Tube Expanders.....1025
Springs, Bending.....1271
Sprinkler Pipe Clips.....1220
Sprinklers, Lawn.....1127
Shampoo..... 130
Sprinkling Hose, Street.....1119
Spud Flanges, Closet..... 444
Wrenches..... 944
Spun Flanges..... 444
Yarn.....1133
Square Flax Packing.....1115
Stable Cesspools..... 481
Staffs, Flag, Steel.....1141
Stair Treads, McDonald..... 487
Stall Partitions, Water Closet..... 77
Trimmings, Closet.....278–281
Trimmings, Urinal.....278–281
Stalls, Closet, Slate 80
Closet, Steel.....78, 79
Urinal, Marble.....268, 270, 271
Urinal, Porcelain...261–263, 265, 266
Urinal, Slate.....268–271
Urinal, Solid Porcelain..... 264
Urinal, Vitreous China..... 267
Standard Automatic Pipe Holders... 887
Automatic Pipe Lifters..... 887
Boiler Tubes.....1151
Brass Valves.....951, 952, 954, 1125
Cast Iron Check Valves, Horizontal..... 869
Cast Iron Fittings.....1171, 1176 ..1178–1181, 1187–1191, 1192–1199
Chain Hoists.....1136
Companion Flanges.....1197, 1198
Compression Bibbs.....341, 344–349
Compression Wash Tray Bibbs... 350
Couplings, Wrought Iron.....1156
Drum Traps, Diamond..... 509
Dry Pan Floor Drains..... 483
Iron Body Gate Valves.....967, 968
Iron Body Valves.....960–962
Pipe Vises.....1259
Pop Safety Valves..... 976
Unions.....1161
Standards, Pump, Force, Extra Heavy Bolted.....685, 751–754
Pump, Force, Hand.....739, 740, 744
Pump, Force, Heavy..... 741
Pump, Force, Windmill.....742–748
Pump, Lift.....725–728
Pump, Lift, Extra Heavy Bolted. 735
Pump, Lift, Windmill.....729–734
Top, Urinal and Closet Stall..... 278
Trap, Slop Sink, Enameled Iron.. 246
Standing Bath Wastes..... 401
Stands, Boiler..... 467
Heater, Monitor.....1072

Page

Stands, Pump, Adjustable 883
Tank, Iron 581
Star Drill Holders 1262
Drill Points 1262
Drills 1272
Grease Cups 1013
Hack Saw Blades 1264
Pipe Drills 1262
Steam Cocks, Brass 970
Flue Cleaners, Magic 1024
Gauge Siphons 1023
Gauges 1015
Hose 1119
Hose Clamps 1124
Pipe 1142, 1143
Pipe Saddles 1216
Pumps, Marsh 1003, 1004
Separators, Austin 993
Separators, Kieley 994
Separators, Victor 995
Thermometers 944
Traps 991
Traps, Detroit 992
Traps, Emergency 991
Traps, Nason 990
Traps, Victor 991
Traps, Wright 991
Tubing 1122
Valve Metal Discs 955
Whistles 1020
Steamers, Thawing 1266
Steamship Wheel Rope 1133
Steel Boiler Tubes 1151
Closet Stalls 78, 79
Drive Heads 848
Expansion Bolts 1214
Flag Staffs 1141
Grease Cups 1013
Medicine Cabinets 184, 185
Oilers 1014
Pump Rods 851
Septic Tank System, Andrews 570, 571
Septic Tanks 572
Storage Tanks 876, 877
Substitutes 850
Tackle Blocks 1135
Tool Chests 1278
Troughs 879
Water Heaters, Wilks 477
Stems and Balls, Rubber 387
and Center Drills 1263
Stillson Pipe Wrenches 1253
Stirrups, Urinal and Closet Stall 280
Stitched Belting, Canvas 1109
Pump Packing 1114
Stock Fountains, Automatic 881
Tanks, Oblong 878
Tanks, Round 875
Stocks, Die, Adjustable, Armstrong 1239, 1240
Die, Adjustable, Oster 1246
Die, Adjustable, Toledo 1242–1244
Die, Beaver 1245

Page

Stocks, Die, Beaverette 1245
Die, Bulldog, Oster 1246
Die, Lightning 1250
Die, Malleable 1238
Die, Matchless, Oster 1247
Die, Ratchet, Oster 1246
Die, T-R-I-O 1241
Ratchet, Reversible, Miller's 1238
Stocks and Dies, Pipe 1238–1247
and Dies, Pump Makers' 1250
and Dies, Tubing 1255
Stone Drills 1262
Laundry Trays, Alberene 256, 257
Stools, Bath 200
Foot, Porcelain 181
Stop Box Caps, McDonald 560
Boxes, Extension, Barry Pattern 560
Boxes, McDonald 560
Cock Boxes, Peerless 561
Cocks 1071
Cocks, Compression 351–359
Cocks, Corporation 312–318
Cocks, Diamond Pattern 622
Cocks, Ground Key 282–303
Cocks, Inverted Key 306–311
Cocks, Minneapolis 298–301
Cocks, Red Top 351
Cocks, Self-Closing, Boston 425
Cocks, Self-Closing, Doherty 425
and Check Valves, Automatic, Davis 981
and Waste Cocks, Compression 351, 352
and Waste Cocks, Diamond Pattern 622
and Waste Cocks, Ground Key 282–303
and Waste Cocks, Inverted Key 306–311
and Waste Cocks, Kelly 76
Stoppers, Rubber 437
Stops, Engine, Gasoline, Automatic 625
Storage Batteries, Lead, McDonald 1028
Tanks, Hot Water 474, 475
Tanks, Steel 876, 877
Stove Cocks, Gas, McDonald 1067, 1068
Stoves, Laundry 478
Straight Joint Chisels 1272
Strainers 277, 438
Cast Iron, Soil Pipe 539
Conductor 554
Ejector 1002
Globe 868
Injector 1002
Irrigation 862
Pipe, Suction, McDonald 868
Pipe, Water, Service 985
Sink 489
Urinal Stall 277
Well 863
Strap Fasteners, Hose 1124
Pipe Vises 1257
Wrenches, Reed 1255
Straps, Hose, Caldwell 1124

Page

Straps, Pipe, Tinned....1220
Pipe Hanger....1217
Street Sprinkling Hose....1119
Washer Guides and Checks.... 946
Washer Keys.... 946
Washer Repairs.... 565
Washers, McDonald.... 564
Strikes, Door, Urinal and Closet Stall 281
Stuffing Box Compression Bibbs..342, 343
Box Heads, Windmill.... 886
Substitutes, Steel.... 850
Suction Hose....1121
Pipe....1079
Pipe Strainers, McDonald.... 868
Sweepers, Arco Wand....1055, 1056
Sweepers, Eureka....1054
Superior Cleanser.... 203
Supplies, Lavatory, Air Chamber, Globe.... 414
Lavatory, Air Chamber, Pear.... 415
Supply Pipes, Bath....393–397
Pipes, Bath, Fuller....390–392
Pipes, Lavatory....416–422
Pipes, Water Closet.... 66
System, Water, McDonald....573–624
....1047, 1048
Tanks, Steel....876, 877
and Waste Fittings, Bath, Combination.... 399
and Waste Fittings, Bath, Compression....398, 400
and Waste Fittings, Bath, Fuller.. 400
and Waste Fittings, Lavatory, Combination.... 404
and Waste Fittings, Lavatory, Compression.... 404
and Waste Fittings, Lavatory, Fuller.... 404
Surface Switches, Perkins....1042
Surgeons' Lavatories, Porcelain.... 204
Sinks, Viteous China.... 205
Combination Sinks and Lavatories.... 207
Surlok Ratchet Grease Cups....1013
Swedging Tools, Lead Flange.... 320
Sweepers, Suction, Arco Wand.1055, 1056
Suction, Eureka....1054
Swift Sight-feed Lubricators....1007
Swing Check Valves, Brass, Jenkins Bros.... 956
Check Valves, Brass, Standard... 954
Check Valves, Iron Body, Jenkins Bros.... 966
Check Valves, Iron Body, Standard.... 962
Cocks....1071
Joints, McDonald....1080
Seats, Adjustable, Kitchen.... 216
Swinging Hose Reels....1130
Switch Panels, Control, Remote....1057
Switchboards, D. A....1029
Power and Lighting....1029
Switches, Electric, Automatic....626–628

Page

Switches, Float.... 628
Lighting, Push Button....1041
Pressure, Automatic....626, 627
Push Button....1041
Snap, Perkins....1042
Surface, Perkins....1042
Sylphon Vent Valves.... 932
Syphon Radiator Air Valves.... 932
System, Oil, Garage, McDonald....
....1104–1106
Tank, Septic, Steel, Andrews..570, 571

T

T Branches, Cast Iron, Soil Pipe 526, 527, 530
Branches, Sewer Pipe....556, 557
T-R-I-O Die Stocks....1241
Table of Pump Plunger Loads....1284
Tables, Dressing, Porcelain....180, 181
Tack Bumpers.... 446
Molds....1269
Tackle Blocks, Steel....1135
Blocks, Wood....1134
Tacoma Glass Oil Cups....1011
Tank Balls, Rubber.... 445
Brackets, Expansion.... 943
Controllers.... 986
Gauges, Expansion....1017
Heaters.... 479
Heaters, Cast Iron, Dubuque.... 882
Heaters, Ideal.... 478
Nipples....1155
Pump Hose....1121
Pumps....634–638, 640
Pumps, Double-acting.... 776
Pumps, Horizontal.... 648
Stands, Iron.... 581
System, Septic, Steel, Andrews 570, 571
Wagon Caps....1097
Wagon Faucets, Diamond..1098, 1099
Wagon Valves, McDonald....1097
Tanks, Closet, Enameled Iron....64, 65
Closet, Galvanized.... 17
Closet, Vitreous China.... 64
Closet, Wood.... 65
Dipping.... 879
Expansion, Galvanized.... 943
Expansion, Smith's.... 943
Septic, Steel.... 572
Stock, Oblong.... 878
Stock, Round.... 875
Storage, Hot Water....474, 475
Storage, Steel....876, 877
Supply, Steel....876, 877
Wagon.... 880
Water Supply System, McDonald....580, 581
Wood, Round....872–874
Tap Borers....1271
Plugs, Rapid....1265
Tape Lines....1268
Taper Reducers, Cast Iron, Extra Heavy....1207

Page

Taper Reducers, Cast Iron, Standard 1195
Taps 852
Tapes, Measuring 1268
Tapping Machines, Water Main 1277
Taps, Pipe 1261
Taper 852
Tarred Rope 1133
Tee Top Jack Screws 1137
Tees, Branch 1186
Brass 1221
Brass, Finished 1222
Brass, Nickel-plated 1222
Cast Iron, Car Heater 1185
Cast Iron, Drainage 1229
Cast Iron, Extra Heavy 1184, 1202–1204, 1208
Cast Iron, Long Turn 1182, 1183
Cast Iron, Soil Pipe 1228
Cast Iron, Standard 1172, 1178, 1179, 1190–1192, 1196
Eccentric 1175
Malleable Iron 1158
Pipe, Cast Iron 1139, 1140
Railing, Brass 1170, 1223
Railing, Malleable Iron 1169, 1170
Tray, Wash 260
Union, Malleable Iron 1163
Urinal 277
Vent 428
Telegraph Self-closing Bibbs 423
Telephone Generator Motors 568
Telescoping Fireproof Floor Sleeves 934
Temperature Regulators, Honeywell 939
Templates for Drilling, Extra Heavy 1211
for Drilling, Standard 1199
Test Plugs, Pipe, Soil 555
Testing Machines, Smoke 1270
Thawing Steamers 1266
Theoretical Horse Power Required to Raise Water, Table of 1284
Thermometers, Hot Water 944
Minneapolis 940
Shower 131
Steam 944
Thermostatic Valves 469, 470
Thermostats, Honeywell 939
Minneapolis 940, 941
Thimbles, Cast Iron, Soil Pipe 538
Threading Machines, Pipe, Oster 1247–1249
Pipe 1146
Tools, Pipe, Adjustable 1238
Tools, Pipe, Armstrong 1239, 1240
Tools, Pipe, Beaver 1245
Tools, Pipe, Oster 1246
Tools, Pipe, Toledo 1242–1244
Three-way Cocks, Brass 971
Cocks, Iron Body 971
Three-Wheel Pipe Cutters, Barnes 1251
Thresher Belts, Canvas 1109
Throttle Valves, Brass 959
Valves, Iron Body 959
Valves, Quick-Opening 957, 1103
Ticonderoga Flake Graphite, Dixon's 1117

Page

Tiling, Liquid 203
Time Attachments, Heat Regulator, Honeywell 939
Attachments, Heat Regulator, Minneapolis 941
Tin, Bar 522
Pipe, Block 521
Toggle Bolts, Diamond 1215
Toilet Paper Holders 191, 198
and Medicine Bottle Holders 197
Toledo Adjustable Die Stocks 1242–1244
Pipe Threading Tools 1242–1244
Tongs, Chain Pipe and Fittings, Agrippa 1256
Lifting 853
Pipe, Adjustable, Brown's 1257
Pipe, Chain, Vulcan 1256
Pipe, Common 1257
Rod, Never-Slip 1257
Sliding 853
Tool Bags, Plumbers' 1270
Chests, Steel 1278
Couplings 852
Tools, Belt 1110, 1111
Pipe, Chain, Williams 1256
Plumbers' 1264–1271
Seating, Well 840
Suction Sweeper, Eureka 1054
Swedging, Lead Flange 320
Threading, Pipe, Adjustable 1238
Threading, Pipe, Armstrong 1239, 1240
Threading, Pipe, Beaver 1245
Threading, Pipe, Oster 1246
Threading, Pipe, Toledo 1242–1244
Vacuum Cleaner, Arco Wand 1057
Well 840
Wrecking 1272
Tooth Brush Holders 196
Brush and Tumbler Holders 191, 192
Top Standards, Urinal and Closet Stall 278
Torches, Blow, C & L 1273
Gasoline, C & L 1273
Towel Bars 189, 193, 194
Traction Engine Gauges 1016
Transmission Rope, Manila 1133
Trap Bushings 431
Covers, Cast Iron, Soil Pipe 541
Screw Ferrules 434
Standards, Slop Sink, Enameled Iron 246
Traps, Bath 516
Bath, Diamond 490, 505, 507
Bath, with Standing Waste 403
Bottle, Diamond 502
Bower 516
Brass, Adjustable 410
Brass, Diamond 490
Cast Iron, Diamond 490–509, 511, 512
Cast Iron, Soil Pipe 535–537
Cellar 481
Clean Sweep 517
Cudell 516
Drum, Diamond 490, 506–511

Page

Traps, Drum, Lead ... 571
Flask, Brass ... 409
Globe, Brass ... 407
Grease, Cast Iron, Diamond ... 513
Grease, Diamond ... 490, 512
Grease, Wade ... 997
Half S, Diamond ... 498–500, 503, 504
Hopper, Iron ... 75
Lavatory, Brass ... 407–410
Lavatory, Diamond ... 490
Lavatory, Nickel-plated ... 411, 412
Lead ... 514–516
Nickel-plated, Adjustable ... 411, 412
Non-Return, Detroit ... 992
P, Brass ... 406
P, Sewer Pipe ... 557
Pear, Brass ... 408
Running, Diamond ... 501
Running, Sewer Pipe ... 557
S, Brass ... 406
S, Cast Iron, Drainage ... 1236
S, Sewer Pipe ... 557
Separating, Detroit ... 992
Short S, Diamond ... 494, 495
Shower Stall, Diamond ... 510
Sink, Brass ... 406
Sink, Diamond ... 490–500
Steam ... 991
Steam, Detroit ... 992
Steam, Emergency ... 991
Steam, Nason ... 990
Steam, Victor ... 991
Steam, Wright ... 991
Urinal ... 276
Vacuum, Detroit ... 992
Traps and Floor Drains ... 485
and Overflows, Bath ... 402
and Wastes, Laundry Tray ... 260
Tray Covers, Laundry ... 260
Fittings, Laundry ... 260
Legs, Laundry ... 260
Plugs, Wash ... 260
Tees, Wash ... 260
Trays, Brush and Comb ... 197
Laundry, Enameled Iron ... 251–255
Laundry, Granitine ... 258, 259
Laundry, Porcelain ... 247–250
Laundry, Stone, Alberene ... 256, 257
Treads, Stair, McDonald ... 487
Trench Plates, McDonald ... 487
Trimmings, Stall, Closet ... 278–281
Stall, Urinal ... 278–281
Trimo Basin Wrenches ... 1267
Pipe Cutters ... 1251
Pipe Wrenches ... 1253
Triplex Tank Wagon Valves ... 1097
Tripods, Boiler ... 467
Triumph Oil Separators ... 995
Water Lifts ... 696
Troughs, Hog ... 879
Steel ... 879
Trunks, Tool, Steel ... 1278
Tube Cleaners ... 1024

Page

Tube Expanders, Boiler ... 1025
Expanders, Roller ... 1025
Expanders, Spring ... 1025
Ferrules, Boiler ... 1152
Scrapers, Elliptical ... 1024
Scrapers, Engineers' Favorite ... 1024
Tubes, Boiler ... 1151
Porcelain ... 1044
Tubing, Beer ... 1222
Brass, Seamless ... 1224
Elevator ... 1122
Fire Extinguisher ... 1122
Joint, Flush ... 1145
Pump, Chain, Galvanized ... 865
Rubber ... 1122
Steam ... 1122
Tubing Couplings, Pump ... 865
Couplings, Wrought Iron ... 1156
Legs, Urinal and Closet Stall ... 279
Stocks and Dies ... 1255
Tubs, Bath, Enameled Iron ... 87–113, 115
Bath, Porcelain ... 82, 84–86
Bath, Solid Porcelain ... 83, 114
Foot, Enameled Iron ... 115
Foot, Solid Porcelain ... 114
Laundry, Enameled Iron ... 251–255
Laundry, Granitine ... 258, 259
Laundry, Porcelain ... 247–250
Laundry, Stone, Alberene ... 256, 257
Porcelain, Solid ... 81
Sitz, Enameled Iron ... 115
Sitz, Solid Porcelain ... 114
Tubular Well Cylinders, Brass-lined ... 843
Well Cylinders, Eureka ... 841
Well Cylinders, Wrought Iron ... 842
Well Points ... 858
Well Valves ... 846, 847
Tumbler Holders ... 191, 196
and Soap Holders ... 197
and Tooth Brush Holders ... 191, 192
Tumblers, China ... 192
Tungsten Lamps ... 1041
Turn Pins ... 1271
Turned Couplings ... 852
Twentieth Century Drum Traps, Diamond ... 506
Twine, Fish ... 1133
Two-Way Underground Valve Force Pumps ... 723

U

U S Government Floor Drains, Josam ... 484
Injectors ... 1000
Underground Force Pumps, Rack and Pinion ... 720
Valve Force Pumps ... 719, 722
Valve Force Pumps, Diamond Special ... 762, 763
Valve Force Pumps, Heavy ... 721
Valve Force Pumps, Two-Way ... 723
Valve Windmill Force Pumps ... 682–684

Page

Underneath Unloading Apparatus.. ....1076, 1077
Underwriters' Fire Hose....1120
Hose Pipes....1126
Union Couplings, Gas Cock....1068
Couplings, Lead Flange.... 320
Elbows.... 927
Elbows, Malleable Iron....1163
Ferrules.... 431
Gaskets, Flange, McDonald....1096
Meter Cocks, Gas, McDonald....1066
Tees, Malleable Iron....1163
Wrench Couplings, McDonald...1081
Unions, Brass....1221
Brass, Finished....1222
Brass, Nickel-plated....1222
Flange, Cast Iron....1177
Flange, Malleable Iron....1162, 1177
Jefferson....1161
Kewanee....1162
Malleable Iron....1161, 1162
Pressed Steel, Rockwood....1161
Solder.... 432
Standard....1161
Unique Hot Water Radiator Valves.. 931
Units, Electrical....1288
Universal Bracket Mirrors.... 188
Bracket Swing Cocks....1070
Cast Iron Traps, Diamond...496, 497
Slop Sinks, Diamond.... 480
Unloading Apparatus, Overhead 1074–1077
Untarred Rope....1133
Urinal Bowls, Vitreous China.... 274
Cocks, Compression.... 275
Cocks, Self-Closing.... 275
Connections.... 276
Fittings....276, 277
Stall Strainers.... 277
Stall Trimmings....278–281
Stalls, Marble....268, 270, 271
Stalls, Porcelain....261–263, 265, 266
Stalls, Slate....268–271
Stalls, Solid Porcelain.... 264
Stalls, Vitreous China.... 267
Traps.... 276
Trough Strainers.... 438
Urinals, Enameled Iron....272, 273
Useful Information.1279–1282, 1284–1288

V

V & K Water Motor Pumps....693–695
V Branches, Sewer Pipe.... 557
Vacuum Cleaners, Arco Wand..1055–1057
Cleaners, Eureka....1054
Gauges....1015
Regulating Valves, Kieley.... 984
Traps, Detroit.... 992
Valve Balls, Rubber....1122
Discs, Jenkins.... 955
Discs, Steam Metal.... 955
Grabs.... 853
Leathers, Pump Cylinder.... 828

Page

Valve Stem Packing, Asbestos....1114
Washers, Siphon.... 445
Weights, Pump Cylinder.... 828
Valves, Air, Radiator....932, 933
Angle, Brass, Diamond.... 953
Angle, Brass, Jenkins Bros...955, 958
Angle, Brass, Safety.... 975
Angle, Brass, Standard.... 951
Angle, Iron Body, Extra Heavy.. 963
Angle, Iron Body, Jenkins Bros. 964, 965
Angle, Iron Body, Safety.... 975
Angle, Iron Body, Standard...960, 961
Back Pressure, Davis.... 980
Back Pressure, Iron Body.... 979
Back Pressure, Noiseless.... 980
Balanced, Fisher.... 986
Blind, Hydraulic.... 852
Blow-Off, Brass, Jenkins Bros.... 973
Blow-Off, Iron Body.... 974
Blow-Off, Iron Body, Jenkins Bros. 973
Blow-Off, Iron Body, Lunkenheimer.... 973
Brass, Diamond.... 953
Brass, Extra Heavy, Jenkins Bros. 955, 956, 958
Brass, Jenkins Bros.....955, 956, 958
Brass, Jenkins Disc, Diamond.... 953
Brass, Jenkins Disc, Standard.... 954
Brass, Standard...951, 952, 954, 1125
Butterfly, Brass.... 959
Butterfly, Iron Body.... 959
Check, Brass, Angle, Combination 951
Check, Brass, Angle, Diamond... 953
Check, Brass, Angle, Jenkins Bros. 956
Check, Brass, Angle, Standard.... 952
Check, Brass, Ball, Standard.... 954
Check, Brass, Horizontal, Diamond.... 953
Check, Brass, Horizontal, Jenkins Bros.... 956
Check, Brass, Horizontal, Standard 952
Check, Brass, Swing, Jenkins Bros. 956
Check, Brass, Swing, Standard... 954
Check, Brass, Vertical, Jenkins Bros.... 956
Check, Brass, Vertical, Standard.. 952
Check, Cast Iron, Horizontal, Diamond.... 869
Check, Cast Iron, Horizontal, Special.... 869
Check, Cast Iron, Horizontal, Standard.... 869
Check, Cast Iron, Vertical.... 869
Check, Cylinder, Pump, Ball and Poppet, Bronze....827, 831
Check, Cylinder, Pump, Bronze... 827
Check, Cylinder, Pump, Bronze Ball.... 832
Check, Cylinder, Pump, Diamond 827, 829
Check, Cylinder, Pump, Diamond Wing.... 830

Page

Valves, Check, Cylinder, Pump, Iowa 827, 830
Check, Cylinder, Pump, Iowa and Wing 830
Check, Cylinder, Pump, Key City 829
Check, Cylinder, Pump, Leather.. 827
Check, Cylinder, Pump, McDonald 827
Check, Cylinder, Pump, Spool.... 831
Check, Cylinder, Pump, Spool Poppet 827
Check, Horizontal, Cast Iron..... 622
Check, Horizontal, Diamond..... 622
Check, Iron Body, Angle, Jenkins Bros 966
Check, Iron Body, Horizontal, Jenkins Bros 966
Check, Iron Body, Horizontal, Standard 962
Check, Iron Body, Swing, Jenkins Bros 966
Check, Iron Body, Swing, Standard 962
Check, Iron Body, Vertical, Jenkins Bros 966
Check, Iron Body, Vertical, Standard 962
Check, Vertical, McDonald.....1096
Cross, Brass, Jenkins Bros..... 955
Cross, Brass, Safety..... 975
Cross, Brass, Standard..... 954
Cross, Iron Body, Jenkins Bros... ..... 964, 965
Cross, Iron Body, Safety..... 975
Cross, Iron Body, Standard..... 960
Float, Arch Pattern..... 871
Float, Common..... 871
Float, Diamond..... 871
Float, Dubuque..... 871
Float, Fisher..... 986
Foot, Combined..... 868
Foot, Patent Valve..... 832
Frost Hole, Compression, McDonald..... 870
Gate, Brass.....623, 957, 958
Gate, Hose..... 959
Gate, Iron Body, Jenkins Bros... 969
Gate, Iron Body, Standard....967, 968
Gate, Lock, McDonald.....1102
Gate, Oil, Brass.....1103
Gate, Quick-Opening..... 959
Globe, Brass, Diamond..... 953
Globe, Brass, Jenkins Bros...955, 958
Globe, Brass, Standard..... 951
Globe, Iron Body, Extra Heavy.. 963
Globe, Iron Body, Jenkins Bros... .....964, 965
Globe, Iron Body, Standard...960, 961
Hose, Garden, Brass.....1125
Iron Body, Extra Heavy..... 963
Iron Body, Extra Heavy, Jenkins Bros.....965, 966
Iron Body, Jenkins Bros.....964–966
Iron Body, Standard.....960–962

Page

Valves, Leather, Pump Cylinder 828
Mixing, Niedecken..... 125
Oil Tank, Duplex, McDonald....1083
Pump, Rubber.....1122
Radiator.....929–931
Radiator, Jenkins Disc.....927, 928
Radiator, Packless, Lavigne..... 930
Reducing, Fisher..... 983
Regulating, Davis..... 982
Regulating, Pressure, Davis..... 982
Regulating, Pressure, Fisher.... 983
Regulating, Pressure, Kieley..... 984
Regulating, Pressure, Mueller.... 985
Relief, Water, Brass.....977, 978
Relief, Water, Diamond.....621, 978
Relief, Water, Dubuque.....621, 978
Relief, Water, Iron Body.....977, 978
Relief, Water, Junior Diamond... 621
Safety, Brass..... 975
Safety, Iron Body..... 975
Safety, Pop, Brass..... 976
Safety, Pop, Detroit..... 975
Safety, Pop, Iron Body..... 976
Sand, Cylinder, Pump, Key City 827, 829
Sewer, Palmer..... 540
Shower..... 131
Stop and Check, Automatic, Davis 981
Thermostatic.....469, 470
Throttle, Brass..... 959
Throttle, Iron Body..... 959
Throttle, Quick-Opening.....957, 1103
Vent, Sylphon..... 932
Wagon, Tank, McDonald 1097
Well, Tubular.....846, 847
Y, Iron Body..... 973
Y, Steam Metal..... 973
Valves and Fittings, Flanged, Drilling, Templates for.....1199, 1211
and Fittings, Flanged, Price List for Drilling.....1212
Vanderman Pipe Bending Forms....1260
Varnish, Asphaltum, Black..... 950
Vault Covers..... 486
Vent Caps, Cast Iron, Soil Pipe..... 538
Crosses..... 428
Fittings..... 428
Fittings, F & W.....544–553
Tees..... 428
Valves, Sylphon..... 932
Ventilated Slate Closet Stalls..... 80
Ventilating Branches, Cast Iron, Soil Pipe..... 529
Pipe, Water Heater..... 471
Ventilators, Globe..... 554
Vento Radiators, Cast Iron.....925, 926
Vertical Check Valves, Brass, Jenkins Bros..... 956
Check Valves, Brass, Standard... 952
Check Valves, Iron Body, Jenkins Bros..... 966
Check Valves, Iron Body, Standard 962
Check Valves, McDonald.....1096

Page

Vertical Pump Jacks 686, 687
Victor Hose Reels 1128
Rubber Buckets 865
Steam Separators 995
Steam Traps, Wright 991
Vises, Pipe, Bench 1258
Pipe, Chain, Vulcan 1256
Pipe, Combination 1259
Pipe, Combination, Vanderman .. 1260
Pipe, Kit 1259
Pipe, Little Wonder 1258
Pipe, Nye 1258
Pipe, Pocket 1258
Pipe, Standard 1259
Pipe, Strap 1257
Pipe, Vanderman 1260
Vitreous China Closet Bowls 67, 68
China Closet Tanks 64
China Drinking Fountains ..... 447, ... 455, 456
China Hospital Sinks 206
China Kitchen Sinks 210
China Laboratory Sinks 226
China Lavatories 132–145, 182
China Slop Sinks 241, 242
China Surgeons' Sinks 205
China Urinal Bowls 274
China Urinal Stalls 267
Vogel Water Closets 62, 63
Vulcan Chain Pipe Tongs 1256
Chain Pipe Vises 1256

W

Wade Catch Basins 997
Grease Traps 997
Wagon Caps, Tank 1097
Faucets, Tank, Diamond ... 1098, 1099
Tanks 880
Valves, Tank, McDonald 1097
Wall Boxes, Radiator 913
Brackets, Radiator 920
Hose Reels 1130
Hydrants 564
Radiators, Cast Iron 916–919
Warehouse Hose Carts 1129
Warm Climate Force Pumps 772
Wash Sinks, Enameled Iron 237, 238
Tray Bibbs, Compression, Standard 350
Tray Bibbs, Improved Fuller 378
Tray Chain 439
Tray Keys 260
Tray Plugs 260, 437
Washer Cutters 1270
Well Points 859
Washers, Glass, Gauge 1019
Hose, Leather 1122
Hose, Rubber 1122
Leather, Cylinder Cap 828
Plug, Bath 446
Radiator 945
Screw, Closet 444

Page

Washers, Slip Joint 446
Street, McDonald 564
Urinal and Closet Stall 279
Valve, Siphon 445
Waste, Basin 446
Waste, Bath 446
Waste, Rubber 446
Washing Deck Hose 1119
Waste, Cotton 1116
Wool 1116
Waste Nuts, Malleable Iron 1164
Washers, Basin 446
Washers, Bath 446
Washers, Rubber 446
Wastes, Bath, Standing 401
Lavatory, Continuous 413
Lavatory, Secret 405
Wastes and Overflows, Bath, Connected 401
and Traps, Laundry Tray 260
Water Closet Flush Pipes 66
Closet Seats 70–73
Closet Stall Partitions 77
Closet Stalls 78–80
Closet Supply Pipes 66
Closet Tanks 17, 64, 65
Closets 6–63
Cocks, Rain and Well 76
Conducting Hose 1119
Conductors, McDonald 870
Elevators 865, 866
Gauge Columns 1018
Gauges 623, 1017
Gauges, Combination 1015
Gauges, Equalized Altitude 1016
Heaters, Auxiliary 908
Heaters, Gas, Combination 468
Heaters, Gas, Dayton 472
Heaters, Gas, Hoffman 473
Heaters, Gas, Humphrey 471
Heaters, Gas, Lawson 469, 470
Heaters, Gas, Ohio 472
Heaters, Gasoline, Lawson 470
Heaters, Globe 908
Heaters, Little Giant 908
Heaters, Maltese 908
Heaters, Wilks 476, 477
Lifts, Electric, McDonald 630–632
Lifts, Eureka 696
Lifts, Triumph 696
Main Tapping Machines 1277
Meters, Niagara 569
Motor Desk Fans 568
Motor Pumps, V & K 693–695
Motors, Specialty 568
Pipe 1142, 1143
Pipe Clamps 1216
Pipe Strainers, Service 985
Relief Valves, Brass 977, 978
Relief Valves, Diamond 621, 978
Relief Valves, Dubuque 621, 978
Relief Valves, Iron Body 977, 978
Relief Valves, Junior Diamond ... 621

Page

Water Softener and Scale Removing Devices 697
Supply System, McDonald ..573–624, ... 1047, 1048
in Pipes, Friction of 1278
Weights, Pipe, Cast Iron 1138
Valve, Pump Cylinder 828
Well Casing, Badger 1150
Cylinders, Artesian 834–836
Cylinders, Artesian, Brass 845
Cylinders, Artesian, Brass-lined .. 844
Cylinders, Double-acting 837
Cylinders, Tubular, Brass-lined .. 843
Cylinders, Tubular, Eureka 841
Cylinders, Tubular, Wrought Iron 842
Gum Packers 840
Packers 840
Point Extensions, Drive 860
Points, Drive, Brass Jacket ...856, 857
Points, Drive, Morris Perfection .. 861
Points, Drive, Wire-covered 855
Points, Flush 858
Points, Large 862
Points, Tubular 858
Points, Washer 859
Screens, Johnson 864
Seals 849
Seating Tools 840
Strainers 863
Tools 840
Valves, Tubular 846, 847
Westcott Adjustable S Wrenches 1254
Whale Line 1133
Whang Leather 1110
Wheels, Cutter, Pipe, Nye 1252
Whistles, Steam 1020
Wick, Asbestos 1114
Candle 1114
Wilks Garbage Burners 476
Water Heaters 476, 477
Willett's Pattern Cesspools 482
Williams' Chain Pipe Tongs 1256
Windmill Attachments, Pump 889
Force Pump Standards 742–748
Force Pumps, Air Compressor 682–684
Lift Pump Standards 729–734
Pumping Devices, Diamond 884
Regulator Force Pumps 724
Regulator Underground Valve Force Pumps 684
Set-length Pumps 701, 710
Stuffing Box Heads 886
Window Radiators 913
Wing Dividers 1271
Wiping Cloths, Nye 1269
Solder 522
Wire, Fixture 1045
Rubber Covered 1046
Wire Brushes 1024
Pipe Hooks 1220
Wire-covered Drive Well Points 855
Wirt and Knox Hose Carts 1129
and Knox Hose Racks 1131

Page

Wirt and Knox Hose Reels 1130
Wood Chisels 1272
Closet Tanks 65
Gouges 1272
Main Nipples 320
Pump Rods 851
Rod Couplings 851
Spirit Levels 1268
Tackle Blocks 1134
Tanks, Round 872–874
Wool, Mineral 949
Wool Felt Pipe Covering 948
Waste 1116
Working Barrels 838, 839
Heads, Deep Well 886
Heads, Power, Electric-driven ... 633
Heads, Power, McDonald 650–681
Wrecking Tools 1272
Wrench Couplings, Union, McDonald 1081
Wrenches, Alligator 1254
Basin, Trimo 1267
Closet Spud 1272
Machinists' 1253
Pipe, Bemis and Call 1253
Pipe, Parmelee 1254
Pipe, Stillson 1253
Pipe, Trimo 1253
S, Adjustable, Westcott 1254
Spud 944
Strap, Reed 1255
Wright Steam Traps 991
Wrought Iron Couplings 1156
Iron Couplings, Car Heater 1185
Iron Tubular Well Cylinders 842
Pipe Lifting and Lowering Machines 888

X

XL-96 Ejectors, Penberthy 1001

Y

Y Bends, Brass 1221
Bends, Brass, Finished 1222
Bends, Brass, Nickel-plated 1222
Branches, Cast Iron, Drainage 1230–1235
Branches, Cast Iron, Extra Heavy 1184, 1205
Branches, Cast Iron, Soil Pipe .528–530
Branches, Cast Iron Standard 1173, 1181
Branches, Malleable Iron 1159
Branches, Pipe, Cast Iron 1140
Branches, Sewer Pipe 556, 557
Fittings, Blake 542
Valves, Iron Body 973
Valves, Steam Metal 973
Yacht Rope 1133
Yarn, Fine 1133
Lath 1133
Selected 1133
Spun 1133

MODEL BATH ROOM

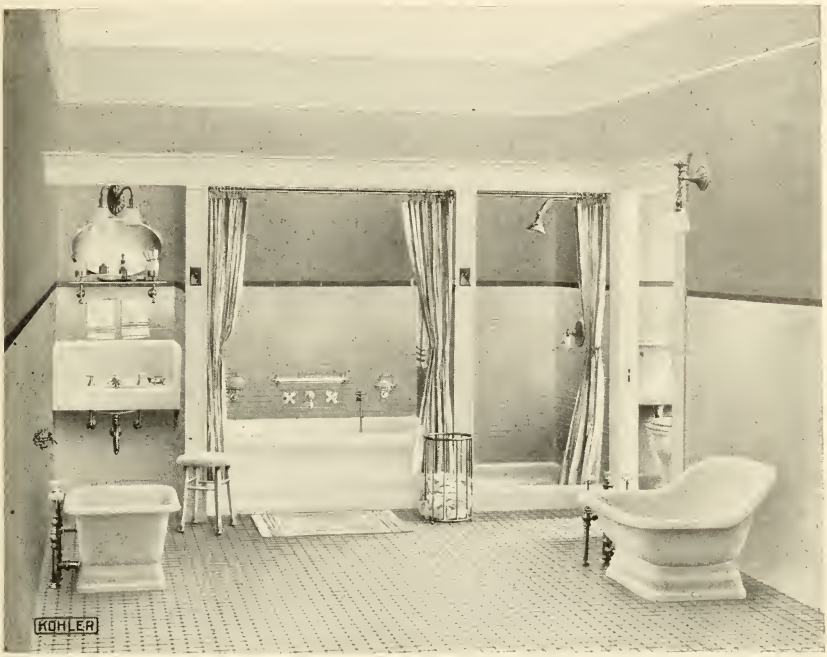


Plate E11

TUB BATH

5-foot Imperator Recess Pattern Bath Tub with Compression Supply Fixture, Shampoo and Model Waste. Price..... 145.60

SHOWER BATH

42-inch Square, Enameled Iron Receptor with N. P. Brass Strainer and Concealed Body Mixing Valve Shower, N. P. Brass Curtain Pole and White Duck Curtain. Price..... 130.00

SEAT BATH

Enameled Iron Seat Bath on Base, Compression Bell Supply Fixture with Model Waste, and Best Quality Zinc White Exterior Finish. Price..... 92.50

FOOT BATH

Enameled Iron Foot Bath on Base, Compression Bell Supply Fixture with Model Waste and Best Quality Zinc White Exterior Finish. Price 62.50

LAVATORY

21x31 inch Enameled Iron Recess Pattern Lavatory with Combination Compression Supply Fixture, N. P. Trap and N. P. Supply Pipes. Price..... 71.60

WATER CLOSET

Rival Syphon Wash Down Closet Bowl with China Low Down Tank, Cello Seat and Cover. Price..... 30.00

MODEL BATH ROOM

Plate E21

MODEL BB

This is a suggestion for a first-class equipment for moderate priced houses, hotels, apartments, etc. The fixtures are placed to the best advantage for a bath room of ample size and each has plenty of space. Such a bath room is easily kept clean as there is no space under any fixture where dust, dirt or moisture may accumulate. The bath is tiled into the wall at side and end, and the fittings are concealed in the wall.

BATH.—5-foot Enameled All Over One-piece Bath, with Nickel-plated Brass Shower, Curtain Rod and White Duck Curtains, Concealed Fittings for Tub and Shower, with China Handles..... **203.00**

LAVATORY.—Enameled Iron Pedestal Lavatory, 20x24 inches, with Fuller Faucets with China Bases, China Handles and China Indexes, Nickel-plated Supply Pipes and Trap to Wall..... **50.30**

CLOSET.—Vitreous China Syphon Wash Down Bowl, White Finish Seat and Cover, and Enameled Iron Tank Complete..... **35.00**

MODEL BATH ROOM

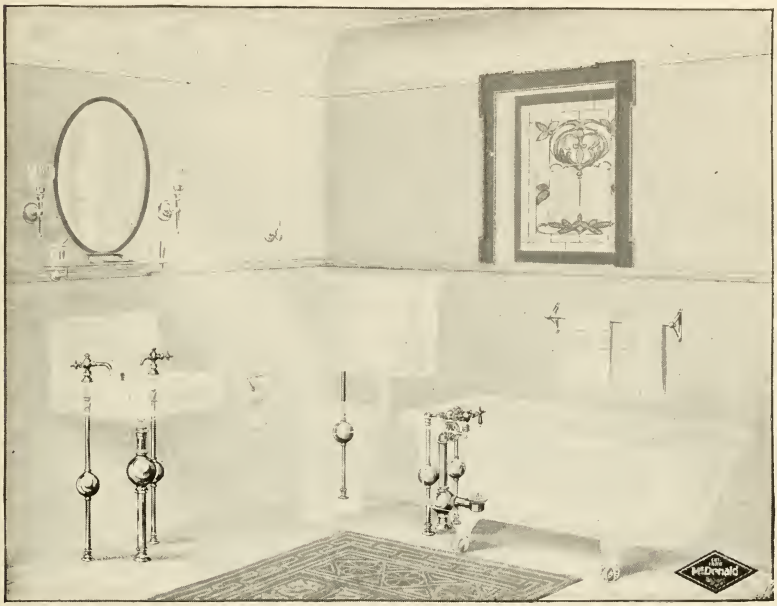


Plate E31

The above illustrates bath room fixtures fitted with our Diamond Globe Supply and Waste Fittings. They may be used on any fixture. They are high-grade sanitary fittings, attractive and harmonious in appearance. The body of the fittings is made of heavy cast brass and the tubing is seamless heavy gauge. The Lavatory trap has a positive deep water seal.

This Bath Trap is a perfect globe, slightly flattened at the bottom to allow its use under any tub. It is perfectly trapped and the partitions so formed that no water will ascend the Overflow Pipe while the tub is emptying, thus keeping the Overflow clean.

When the Trap is not in action, the water is trapped just at the Bath Tub Strainer, thus leaving no fouling surface, while in the old method of using a drum trap, there were in many cases, several feet of empty waste pipe which together with the overflow formed extensive and excessive fouling surface.

Labor considered, it is much cheaper than the drum trap and usual waste fixtures, with the additional advantage of having the trap above the floor where it is easily accessible and readily removed for cleansing.

It roughs in the same as a regular connected waste and overflow.

MODEL BATH ROOM

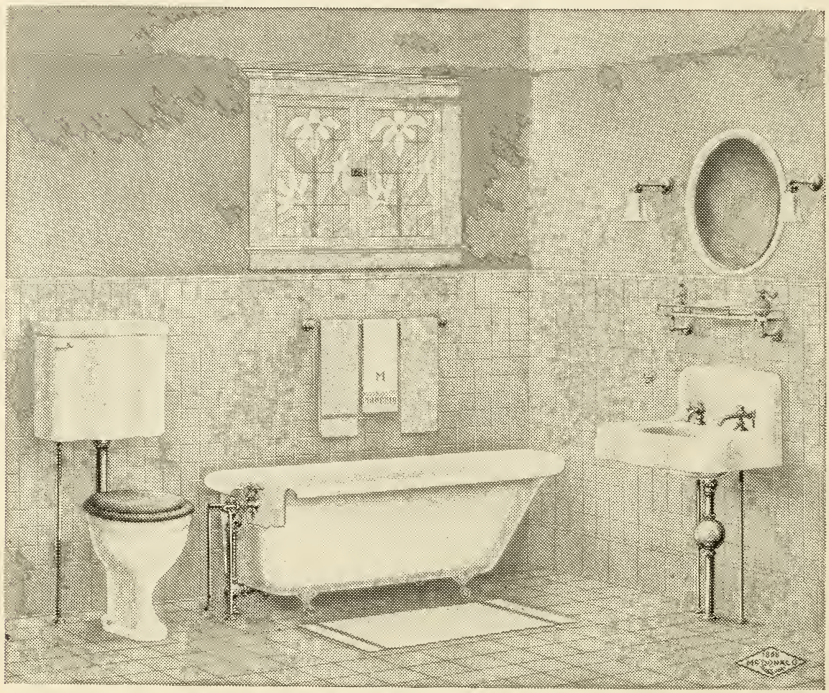


Plate E41

This is an inexpensive equipment for small bath rooms in houses of moderate cost, apartments and flat buildings. With a proper interior finish and arrangement of the fixtures this simple installation is attractive.

BATH — 5½-foot Enameled Iron Bath with Compression Cock, Connected Waste and Overflow and Supply Pipes..... **48.00**

LAVATORY — Enameled Iron Lavatory, 18 x 24 inches, with Integral Back and Apron, Fuller Faucets with China Handles, China Indexes and Supply Pipes and Trap..... **30.50**

CLOSET — Vitreous China Reverse Trap Syphon Washdown Bowl, Oak Seat and Cover, and Vitreous China Tank, Complete..... **30.00**

MODEL BATH ROOM

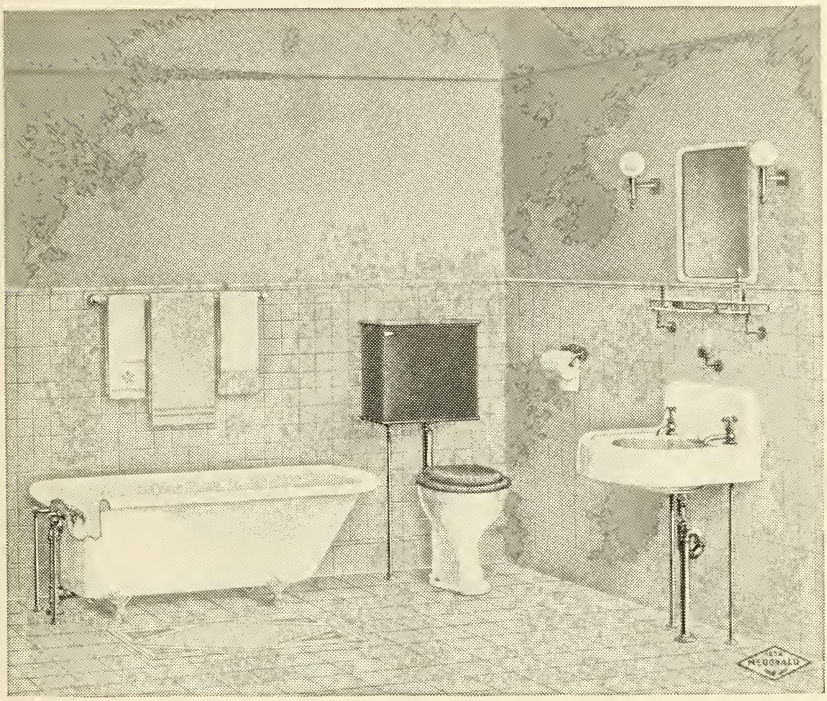


Plate E51

This type of bath room is within reach of every home builder and adds more than its cost to the value of the home. It is an inexpensive equipment and intended for houses of moderate cost, apartments or flat buildings. While the fixtures are not elaborate in design they are of first-class quality. The arrangement may be readily changed to suit the floor space.

BATH.—5½-foot Enameled Iron Bath on Legs, 3-inch Roll Rim, Fitted with Nickel-plated Fuller Double Bath Cock, Nickel-plated Connected Waste and Overflow, and Supply Pipes **48.00**

LAVATORY.—Enameled Iron Lavatory, 18 x 21 inches, with Integral Back and Apron, Compression Faucets, Nickel-plated Supply Pipe and Trap **21.50**

CLOSET.—Rival Vitreous China Syphon Washdown Bowl, Golden Oak Seat and Cover, and Oak Tank Complete **30.00**

WATER CLOSETS

Sectional view of tank used on our Jetties Noiseless Closet Combination.

Notice simplicity of moving parts. Only one moving part on flushing and after-fill device.

Combination fitted with our Jetties Noiseless Bowl. It is of course impossible to obtain an absolutely noiseless bowl, but this is as nearly noiseless as is possible and yet maintain a good strong flush.

It is the most reliable and most satisfactory operating high grade closet combination on the market.

See succeeding pages for description and prices.

WATER CLOSETS

JETTIES NOISELESS SYPHON JET CLOSET

WITH VITREOUS CHINA TANK AND INTEGRAL SYPHON

Plate E71

Jetties Noiseless Syphon Jet Closet Combination with Vitreous China Tank with Integral Syphon, White Celluloid Covered Seat with Cover and Nickel-plated Cast Bar Hinges; Nickel-plated Offset Flush Connection and Nickel-plated Annealed Brass Supply Pipe.

Price, as described..... 42.50

Add for Brass Floor Flange and Gasket..... .75
" " Wheel Handle Stop on Supply..... 1.00
" " Nickel-plated Slip Joint Floor Flanges..... .40

This closet is especially recommended where a high-grade combination is desired.

WATER CLOSETS

JETTIES NOISELESS SYPHON JET CLOSET

WITH VITREOUS TANK AND INTEGRAL SYPHON

Plate E81

Jetties Noiseless Syphon Jet Closet Combination with Vitreous China Tank with Integral Vitreous Syphon; Nickel-plated Seamless Annealed Brass Supply Pipe Threaded for ⅜-inch I. P. and with Integral Collar; Nickel-plated Brass Offset Flush Connection; Nickel-plated Cast Brass Lever Pull with China Handle; McDonald Hand Rubbed and Polished Birch-mahogany Seat with Cover and Nickel-plated Brass Bar Hinges.

This combination is especially recommended where a high grade combination is desired.

Price, as described	**37.50**
Add for Brass Floor Flange and Gasket	**.75**
" " Wheel Handle Stop on Supply	**1.00**
" " ⅜-inch Nickel-plated Slip Joint Floor Flange	**.40**

WATER CLOSETS

JETTIES NOISELESS SYPHON JET CLOSET

WITH WOOD TANK AND GALVANIZED SYPHON

Plate E91

Plain Jetties Bowl; Plain Round Corner Oak Tank; Nickel-plated Thumb Lever; Plain Oak Seat with Cover; Nickel-plated Offset Flush Connection and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	33.50
Add for 3-lb. Lead Lining in Tank	1.25
" " $\frac{3}{8}$-inch Slip Joint Floor Flange	.40
" " Wheel Handle Stop on Supply Pipe	1.00
" " Brass Floor Flange and Gasket	.75

WATER CLOSETS

NOKOMIS SYPHON JET CLOSET

WITH VITREOUS TANK AND FLOAT FIXTURE

Plate E101

Plain Nokomis Vitreous China Bowl; Scalloped Front Vitreous China Tank with Float Fixtures; Nickel-plated Cast Brass Lever Pull with China Handle; Oak Saddle Seat with Cover; Nickel-plated Offset Flush Connection and Nickel-plated Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	**31.50**
Add for Wheel Handle Stop on Supply Pipe	**1.00**
" " ⅜-inch Nickel-plated Slip Joint Floor Flange	**.40**
" " Brass Floor Flange and Gasket	**.75**

WATER CLOSETS

SYPHON JET

Plate E111

Vitreous China Syphon Jet Bowl with Extended Front Lip, Open Oak Seat and Cover with Nickel-plated Front Bar and Nickel-plated Hinges, Vitreous China Round Front Tank with High Pressure Compound Ball Cock, Rubber Ball Flush Valve, China Handle Lever, Nickel-plated Supply Pipe with Stop, Nickel-plated Flush Connection, Floor Screws and Washers.

Price, as described 51.00

WATER CLOSETS

SYPHON JET

Plate E121

Vitreous China Syphon Jet Bowl with Raised Front Lip, Open Front Sanitary Oak Seat with Heavy Nickel-plated Hinge and Nickel-plated Brass Re-enforcing Plate, No. "V" Vitreous China Tank with Elevated High Pressure Ball Cock, 2¾-inch Rubber Ball Flush Valve, China Handle Lever, Nickel-plated Flush Connection, Nickel-plated Supply Pipe with Stop and Flange, Floor Screws and Washers.

Price, as described 45.00

If without Stop in Supply Pipe, deduct 1.00
" with Brass Floor Flange and Rubber Gasket, add 1.00

WATER CLOSETS

DIAMOND LOW DOWN TANK

WITH CHINA SYPHON CAST INTEGRAL WITH TANK

One moving part for flushing and after-filling device only.

Two good strong flushes.

This sectional cut clearly shows the construction of working parts.

The elimination of complicated parts is noticeable, and it will be readily seen that our device must be what we claim for it, the simplest and most reliable yet produced.

They are as nearly noiseless as it is possible for an operation of this kind.

There are no delicate parts, so that with proper care the combination will not require any repairs for years.

See succeeding pages for description and prices.

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND INTEGRAL VITREOUS SYPHON

Plate E141

Plain Vitreous Rival Reverse Trap Bowl; Scalloped Vitreous Tank, with Integral Vitreous Syphon; Nickel-plated, Seamless, Annealed, Brass Supply Pipe Threaded for ⅜-inch Iron Pipe and with Integral Collar for Union Connection to Tank; Nickel-plated, Cast Brass Lever Pull with China Handle; McDonald White Celluloid Seat with Cover; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Brass Union Joint Flush Pipe with Integral Collar at Union Joint; Nickel-plated Floor Screws and Washers; High Pressure Ball Cock with 5-inch Glass Float, Complete.

Price, as described..... **37.00**

Add for Brass Floor Flange and Gasket..... **.75**
" " Wheel Handle Stop on Supply Pipe..... **1.00**
" " ⅜-inch Slip Joint Floor Flange..... **.40**

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND INTEGRAL VITREOUS SYPHON

Plate E151

Plain Vitreous Rival Reverse Trap Bowl; Scalloped Vitreous Syphon with China Lever Pull; McDonald 1½-inch Genuine Mahogany Saddle Seat with Cover; Seat Hand Rubbed and Polished; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Brass Union Joint Flush Pipe with Integral Collar at Union Joint; Nickel-plated Brass Seamless Annealed Supply Pipe Threaded for ⅜-inch Iron Pipe and with Integral Collar for Connection to Tank; Nickel-plated Floor Screws and Washers; High Pressure Ball Cock with 5-inch Glass Float, Complete.

Price, as described	**32.00**
Add for ⅜-inch Slip Joint Floor Flange	**.40**
" " Brass Floor Flange and Gasket	**.75**
" " Wheel Handle Stop on Supply Pipe	**1.00**

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSETS

WITH VITREOUS TANK AND INTEGRAL VITREOUS SYPHON

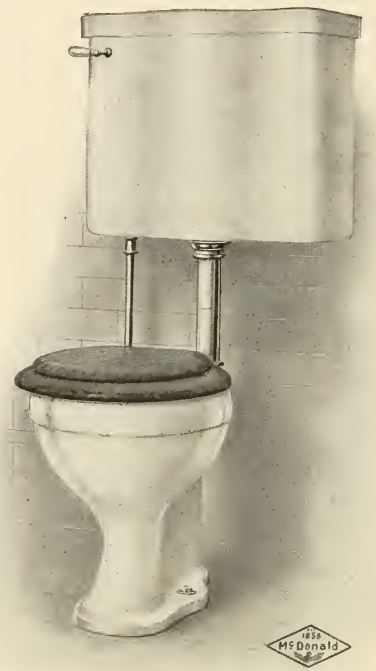


Plate E161

Plain Vitreous Rival Reverse Trap Bowl; Scalloped Vitreous Syphon; Nickel-plated Seamless Annealed Brass Supply Pipe Threaded for ⅜-inch Iron Pipe and with Integral Collar for Union Connection to Tank; Nickel-plated Cast Brass Lever Pull with China Handle; McDonald Hand Rubbed and Polished Birch-mahogany Seat with Cover; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Brass Union Joint Flush Pipe with Integral Collar at Union Joint; Nickel-plated Floor Screws and Washers; High Pressure Ball Cock with 5-inch Glass Float, Complete.

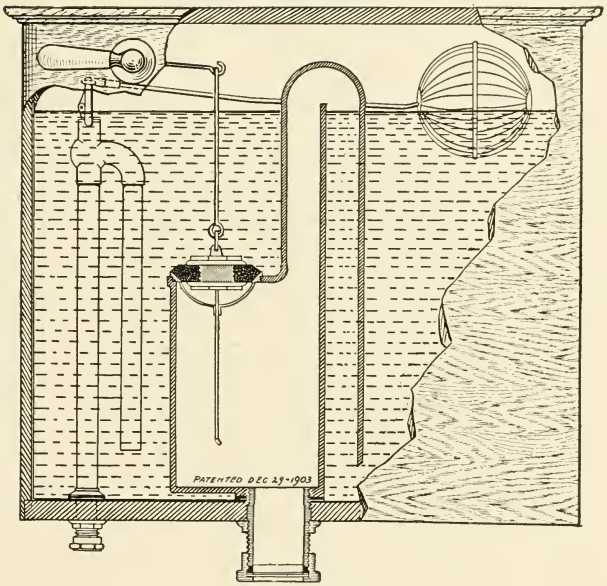
Price, as described	**30.00**
Add for Brass Floor Flange and Gasket	**.75**
" " Wheel Handle Stop on Supply Pipe	**1.00**
" " ⅜-inch Slip Joint Floor Flange	**.40**

CLOSET TANKS

LOW DOWN TANK

WITH GALVANIZED SYPHON

Patented December 29, 1903



The Cast Iron Syphon Bottle for so many years satisfactorily used on High Tanks is here, for the first time adapted to the Low Down Tank, and has proven to be just as reliable, serviceable and satisfactory as ever.

ONE MOVING PART ONLY FOR FLUSHING AND AFTER-FILLING DEVICE

Few Pieces. Always Clean. No Trouble. No Delicate Parts

TWO GOOD FLUSHES

So Simple and Perfect as to Astonish. Brings Business

See succeeding pages for description and prices.

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND GALVANIZED SYPHON

Plate E181

Plain Vitreous Rival Reverse Trap Bowl; Scalloped Vitreous Tank with Galvanized Syphon Bottle; Nickel-plated, Seamless, Annealed Brass Supply Pipe Threaded for ⅜-inch Iron Pipe and with Integral Collar for Union Connection to Tank; Nickel-plated, Cast Brass, Lever Pull with China Handle; McDonald White Celluloid Covered Seat with Cover; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Brass Union Joint Flush Pipe with Integral Collar at Union Joint; Nickel-plated Floor Screws and Washers; High Pressure Ball Cock with 5-inch Glass Float, Complete.

Price, as described **32.50**

Add for Brass Floor Flange and Gasket ..... **.75**
" " ⅜-inch Slip Joint Floor Flange ..... **.40**
" " Wheel Handle Stop on Supply Pipe **1.00**

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND GALVANIZED SYPHON

Plate E191

Plain Vitreous Rival Reverse Trap Bowl; Scalloped Vitreous Tank with Galvanized Syphon Bottle; Nickel-plated, Seamless, Annealed, Brass Supply Pipe Threaded for ⅜-inch Iron Pipe and with Integral Collar for Union Connection to Tank; Nickel-plated, Cast Brass, Lever Pull with China Handle; McDonald Hand Rubbed and Polished Birch Mahogany Seat with Cover; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Brass Union Joint Flush Pipe with Integral Collar at Union Joint; Nickel-plated Floor Screws and Washers; High Pressure Ball Cock with 5-inch Glass Float, Complete.

Price, as described	27.00
Add for Brass Floor Flange and Gasket	.75
" " Wheel Handle Stop on Supply Pipe	1.00
" " ⅜-inch Slip Joint Floor Flange	.40
" " White One-piece Fiber Seat with Cover	3.00

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH ENAMELED CAST IRON TANK AND GALVANIZED SYPHON

Plate E201

Vitreous Rival Reverse Trap Bowl; Enameled All Over Iron Tank with Galvanized Syphon Fixture; Cast Brass Lever Pull with China Handle; White Celluloid Covered Seat with Cover; Nickel-plated Flush Connection and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	**36.50**
Add for Wheel Handle Stop on Supply Pipe	**1.00**
" " Brass Floor Flange and Gasket	**.75**
" " ⅜-inch Slip Joint Floor Flange	**.40**

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND GALVANIZED SYPHON

Plate E211

Plain Vitreous Rival Bowl; Scalloped Vitreous Tank with China Lever Pull; White Celluloid Covered Seat with Cover; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Brass Union Joint Flush Pipe with Integral Collar at Union Joint; Nickel-plated Brass Seamless Annealed Supply Pipe Threaded for ⅜-inch Iron Pipe and with Integral Collar for Connection to Tank; Nickel-plated Floor Screws and Washers; High Pressure Ball Cock with 5-inch Glass Float, Complete.

Price, as described	32.00
Add for ⅜-inch Slip Joint Floor Flange	.40
" " Brass Floor Flange and Gasket	.75
" " Wheel Handle Stop on Supply Pipe	1.00

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND GALVANIZED SYPHON

Plate E221

Plain Vitreous Rival Bowl; Scalloped Vitreous Tank; Nickel-plated Seamless Annealed Brass Supply Pipe Threaded for $\frac{3}{8}$-inch Iron Pipe and with Integral Collar for Union Connection to Tank; Nickel-plated Cast Brass Lever Pull with China Handle; McDonald Hand Rubbed and Polished Birch-mahogany Seat with Cover; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Brass Union Joint Flush Pipe with Integral Collar at Union Joint; Nickel-plated Floor Screws and Washers; High Pressure Ball Cock with 5-inch Glass Float, Complete.

Price, as described..... **27.00**

Add for Brass Floor Flange and Gasket..... **.75**
" " Wheel Handle Stop on Supply Pipe..... **1.00**
" " $\frac{3}{8}$-inch Slip Joint Floor Flange..... **.40**

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH ENAMELED CAST IRON TANK AND GALVANIZED SYPHON

Plate E231

Plain Vitreous Rival Reverse Trap Bowl; Enameled All Over Iron Tank with Galvanized Syphon Fixture; Cast Brass Lever Pull with China Handle; Birch-mahogany Seat with Cover; Nickel-plated Brass Flush Connection and Supply Pipe, Floor Screws and Washers; Complete.

Price, as described **31.50**

Add for Wheel Handle Stop on Supply Pipe **1.00**
" " Brass Floor Flange and Gasket ..... **.75**
" " 3/8-inch Slip Joint Floor Flange ..... **.40**

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH ENAMELED CAST IRON TANK AND GALVANIZED SYPHON

Plate E241

Plain Vitreous Rival Bowl; Enameled All Over Cast Iron Tank with Galvanized Syphon Fixture; Nickel-plated Cast Brass Lever Pull with China Handle; Birch-mahogany Seat with Cover; Nickel-plated Brass Flush Connection and Supply Pipe, Floor Screws and Washers, Complete.

Price, as described	**30.00**
Add for Wheel Handle Stop on Supply Pipe	**1.00**
" " Brass Floor Flange and Gasket	**.75**
" " ⅜-inch Slip Joint Floor Flange	**.40**

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH ENAMELED IN AND OUT STEEL TANK AND GALVANIZED SYPHON

Plate E251

Plain Vitreous Rival Reverse Trap Bowl; Enameled In and Out Steel Tank; Cast Brass Lever Pull with China Handle; McDonald Seat with Cover; Nickel-plated Brass Flush Pipe and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	25.50
Add for Wheel Handle Stop on Supply Pipe	1.00
" " Brass Floor Flange and Gasket	.75
" " ⅜-inch Nickel-plated Slip Joint Floor Flange	.40

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH ENAMELED IN AND OUT STEEL TANK AND GALVANIZED SYPHON

Plate E261

Plain Vitreous Rival Bowl; Enameled In and Out Steel Tank; Nickel-plated Seamless Annealed Brass Supply Pipe Threaded for ⅜-inch Iron Pipe and with Integral Collar for Union Connection to Tank; Nickel-plated Cast Brass Lever Pull with China Handle; McDonald Hand Rubbed and Polished Birch-mahogany Seat with Cover; Nickel-plated Brass Union Joint Flush Pipe; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Floor Screws and Washers, Complete.

Price, as described	**24.00**
Add for Wheel Handle Stop on Supply Pipe	**1.00**
" " Brass Floor Flange and Gasket	**.75**
" " ⅜-inch Nickel-plated Slip Joint Floor Flange	**.40**

WATER CLOSETS

RIVAL SYPHON WASHDOWN CLOSET

WITH WOOD TANK AND GALVANIZED SYPHON

Plate E271

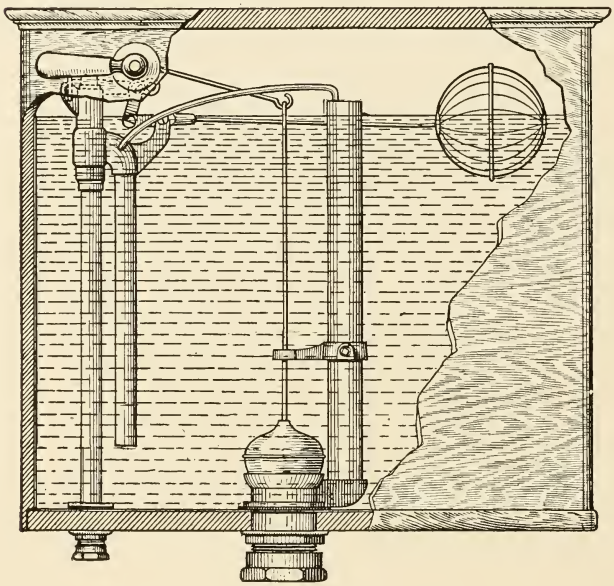
Plain Vitreous Rival Bowl; Hand Rubbed and Polished Round Corner Oak Tank; Nickel-plated, Seamless, Annealed, Brass Supply Pipe Threaded for $\frac{3}{8}$-inch Iron Pipe and with Integral Collar for Union Connection to Tank; Nickel-plated, Cast Brass, Lever Pull with China Handle; McDonald Hand Rubbed and Polished Oak Seat with Cover; Nickel-plated Brass Union Joint Flush Pipe; Heavy Nickel-plated Brass Bar Seat Hinge; Nickel-plated Floor Screws and Washers, Complete.

Price, as described	21.50
Add for 3-pound Lead Lined Tank	1.25
" " Brass Floor Flange and Gasket	.75
" " Wheel Handle Stop on Supply Pipe	1.00
" " $\frac{3}{8}$-inch Slip Joint Floor Flange	.40

CLOSET TANKS

LOW DOWN TANK

WITH FLOAT FIXTURES



Sectional view of float fixture tank as used on Regal and Seneca Combinations.

Compound lever ball cock with brass inlet and outlet pipes. Ball cock being near the water line is easy of access for repairs, etc.

See succeeding pages for description and prices.

WATER CLOSETS

REGAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND FLOAT FIXTURE

Plate E291

Plain Vitreous Regal Reverse Trap Bowl, Plain Vitreous Tank with Float Fixtures, Nickel-plated Cast Brass Lever Pull with China Handle; White Celluloid Covered Seat with Cover; Nickel-plated Flush and Supply Pipes; Nickel-plated Floor Screws and Washers, Complete.

Price, as described	40.00
Add for Brass Floor Flange and Gasket	.75
" " Wheel Handle Stop on Supply Pipe	1.00
" " ⅜-inch Slip Joint Floor Flange	.40

WATER CLOSETS

REGAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND FLOAT FIXTURE

Plate E301

Plain Vitreous Regal Reverse Trap Bowl; Plain Vitreous Tank with Float Fixtures; Nickel-plated Cast Brass Lever Pull with China Handle, with Birch-Mahogany Seat and Cover; Nickel-plated Flush and Supply Pipes; Nickel-plated Floor Screws and Washers, Complete.

Price, as described	**35.00**
Add for Brass Floor Flange and Gasket	**.75**
" " Wheel Handle Stop on Supply Pipe	**1.00**
" " ⅜-inch Slip Joint Floor Flange	**.40**

WATER CLOSETS

REGAL SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND FLOAT FIXTURE

Plate E311

Plain Vitreous Regal Bowl, Plain Vitreous Tank with Float Fixtures, Nickel-plated Cast Brass Lever Pull with China Handle, with Birch-mahogany Seat and Cover; Nickel-plated Flush and Supply Pipes; Nickel-plated Floor Screws and Washers, Complete.

Price, as described	33.50
Add for Brass Floor Flange and Gasket	.75
" " Wheel Handle Stop on Supply Pipe	1.00
" " ⅜-inch Slip Joint Floor Flange	.40

WATER CLOSETS

REGAL SYPHON WASHDOWN CLOSET

WITH ENAMELED IN AND OUT STEEL TANK AND FLOAT FIXTURES

Plate E321

Plain Vitreous Regal Washdown Bowl, Enameled In and Out Steel Tank with Float Fixtures; Cast Brass Lever Pull with China Handle, Birch-mahogany Seat with Cover; Nickel-plated Brass Flush Pipe and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	**20.00**
Add for Wheel Handle Stop on Supply	**1.00**
" " Brass Floor Flange and Gasket	**.75**
" " ⅜-inch Nickel-plated Slip Joint Floor Flange	**.40**

WATER CLOSETS

REGAL SYPHON WASHDOWN CLOSET

WITH WOOD TANK AND FLOAT FIXTURE

Plate E331

Plain Vitreous Regal Bowl; Plain Round Corner Oak Tank with Float Fixtures; Nickel-plated Cast Brass Lever Pull with China Handle; Plain Oak Seat with Cover; Nickel-plated Brass Flush Connection and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	20.00
Add for ⅜-inch Slip Joint Floor Flange	.40
" " Brass Floor Flange and Gasket	.75
" " Wheel Handle Stop on Supply Pipe	1.00
" " 3-pound Lead Lining in Tank	1.25

WATER CLOSETS

SENECA SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND FLOAT FIXTURE

Plate E341

Plain Vitreous Seneca Reverse Trap Bowl, Plain Vitreous Tank with Float Fixture; Nickel-plated Cast Brass Lever Pull with China Handle; with Birch-mahogany Seat and Cover; Nickel-plated Flush and Supply Pipes; Nickel-plated Floor Screws and Washers, Complete.

Price, as described	**32.00**
Add for Brass Floor Flange and Gasket	**.75**
" " Wheel Handle Stop on Supply Pipe	**1.00**
" " 3/8-inch Slip Joint Floor Flange	**.40**

WATER CLOSETS

SENECA SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND FLOAT FIXTURE

Plate E351

Plain Vitreous Seneca Reverse Trap Bowl, Plain Vitreous Tank with Float Fixtures; Nickel-plated Cast Brass Lever Pull with China Handle; White Celluloid Covered Seat and Cover; Nickel-plated Flush and Supply Pipes; Nickel-plated Floor Screws and Washers, Complete.

Price, as described	37.00
Add for Brass Floor Flange and Gasket	.75
" " Wheel Handle Stop on Supply Pipe	1.00
" " 3/8-inch Slip Joint Floor Flange	.40

WATER CLOSETS

SENECA SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND FLOAT FIXTURE

Plate E361

Plain Vitreous Seneca Bowl, Plain Vitreous Tank with Float Fixture; Nickel-plated Cast Brass Lever Pull with China Handle; with Birch-magohany Seat and Cover; Nickel-plated Flush and Supply Pipes; Nickel-plated Floor Screws and Washers, Complete.

Price, as described..... 30.50

Add for Brass Floor Flange and Gasket..... .75
" " Wheel Handle Stop on Supply Pipe..... 1.00
" " 3/8-inch Slip Joint Floor Flange..... .40

WATER CLOSETS

ROYAL SYPHON WASHDOWN COMBINATION

WITH VITREOUS TANK AND FLOAT FIXTURE

Plate E371

Plain Vitreous Royal Washdown Bowl, Vitreous Tank with Float Fixtures; Birch-mahogany Seat with Cover, ⅜-inch Nickel-plated Supply Pipe and Nickel-plated Brass Flush Pipe.

Price, as described	20.00
Add for Wheel Handle Stop on Supply	1.00
" " Brass Floor Flange and Gasket	.75
" " ⅜-inch Nickel-plated Slip Joint Floor Flange	.40

WATER CLOSETS

JETTIES AUTOMATIC SYPHON JET CLOSET

WITH VITREOUS TANK AND GALVANIZED SYPHON

Plate E381

Plain Jetties Vitreous Bowl; Vitreous Tank and Automatic Seat Operating Flush Valve; Nickel-plated Brass Seat Operating Rod; Oak Seat (no cover) with Heavy Nickel-plated Brass Extension Arm to Operating Rod; Nickel-plated Offset Flush Connection and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described **45.00**

Add for ⅜-inch Slip Joint Floor Flange ..... **.40**
" " Wheel Handle Stop on Supply Pipe **1.00**
" " Brass Floor Flange and Gasket ..... **.75**

WATER CLOSETS

RIVAL AUTOMATIC SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND GALVANIZED SYPHON

Plate E391

Plain Vitreous Rival Syphon Washdown Bowl, Vitreous China Tank and Automatic Seat Operating Flush Valve; Nickel-plated Brass Seat Operating Rod, Oak Seat, No Cover, with Brass Reinforcing Ring and Nickel-plated Brass Extension Arm to Operating Rod; Nickel-plated Flush Ell and Nickel-plated Supply Pipe, Floor Screws and Washers.

Price, as described..... 37.50

Add for ⅜-inch Nickel-plated Slip Joint Floor Flange.... .40
" " Wheel Handle Stop on Supply..... 1.00
" " Brass Floor Flange and Gasket..... .75

WATER CLOSETS

RIVAL AUTOMATIC SYPHON WASHDOWN CLOSET

WITH VITREOUS TANK AND GALVANIZED SYPHON

Plate E401

Plain Vitreous Rival Juvenile Bowl 13 inches High; Vitreous Tank and Automatic Seat Operating Flush Valve; Nickel-plated Brass Seat Operating Rod; Oak Seat (no Cover) with Heavy Nickel-plated Brass Extension Arm to Operating Rod; Nickel-plated Brass Flush Connection and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	**39.00**
Add for ⅜-inch Slip Joint Floor Flange	**.40**
" " Wheel Handle Stop on Supply Pipe	**1.00**
" " Brass Floor Flange and Gasket	**.75**
" " Weighted Self-raising Seat	**1.50**

WATER CLOSETS

JETTIES AUTOMATIC SYPHON JET CLOSET

WITH WOOD TANK AND GALVANIZED SYPHON

Plate E411

Plain Jetties Vitreous Bowl; Round Corner Oak Tank and Automatic Seat Operating Flush Valve; Nickel-plated Brass Seat Operating Rod; Oak Seat (no cover) with Heavy Nickel-plated Brass Extension Arm to Operating Rod; Nickel-plated Offset Flush Connection and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	40.50
Add for 3-pound Lead Lining in Tank	1.25
" " ⅜-inch Slip Joint Floor Flange	.40
" " Wheel Handle Stop on Supply Pipe	1.00
" " Brass Floor Flange and Gasket	.75

WATER CLOSETS

RIVAL AUTOMATIC SYPHON WASHDOWN CLOSET

WITH WOOD TANK AND GALVANIZED SYPHON

Plate E 421

Plain Vitreous Rival Syphon Washdown Bowl, Oak Tank and Automatic Seat Operating Flush Valve; Nickel-plated Brass Seat Operating Rod; Oak Seat, No Cover, with Brass Reinforcing Ring and Nickel-plated Brass Extension Arm to Operating Rod; Nickel-plated Flush Ell and Nickel-plated Supply Pipe; Floor Screws and Washers.

Price, as described	**30.00**
Add for ⅜-inch Nickel-plated Slip Joint Floor Flange	**.40**
" " Wheel Handle Stop on Supply	**1.00**
" " Brass Floor Flange and Gasket	**.75**

WATER CLOSETS

RIVAL AUTOMATIC SYPHON WASHDOWN CLOSET

WITH WOOD TANK AND GALVANIZED SYPHON

Plate E431

Plain Vitreous Rival Juvenile Bowl 13 inches High; Oak Tank and Automatic Seat Operating Flush Valve; Nickel-plated Brass Seat Operating Rod; Oak Seat, no Cover, with Heavy Nickel-plated Brass Extension Arm to Operating Rod; Nickel-plated Brass Flush Connection and Supply Pipe; Floor Screws and Washers, Complete.

Price, as described	31.50
Add for ⅜-inch Nickel-plated Slip Joint Floor Flange	.40
" " Wheel Handle Stop on Supply	1.00
" " Brass Floor Flange and Gasket	.75

WATER CLOSETS

JETTIES SYPHON JET CLOSET

WITH WOOD TANK AND AUTOMATIC FIXTURES

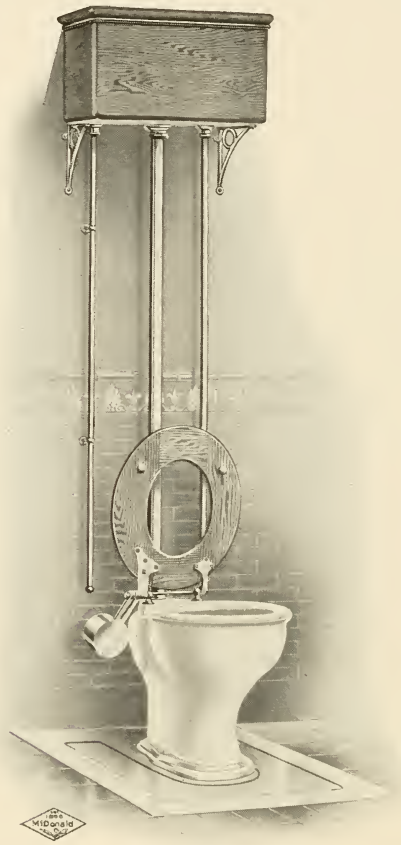


Plate E441

Plain Vitreous Jetties Bowl; Round Corner Oak Tank with Nickel-plated Brass Brackets and Automatic Seat Operating Flush Valve; Nickel-plated Brass Seat Operating Rod and Wall Guide; Automatic, Self-raising Oak Seat (no cover); Nickel-plated Flush and Supply Pipes with Wall Supports; Floor Screws and Washers, Complete.

Price, as described	**44.00**
Add for 3-pound Lead Lining in Tank	**1.00**
" " ⅜-inch Slip Joint Floor Flange	**.40**
" " Brass Floor Flange and Gasket	**.75**
" " Wheel Handle Stop on Supply Pipe	**1.00**
Deduct for Seat without Weight	**1.50**

The weighted self-raising seat provides a combined closet and urinal, especially adapted to schools and public buildings.

WATER CLOSETS

PEARL SYPHON WASHDOWN CLOSET

WITH WOOD TANK AND AUTOMATIC FIXTURES

Plate E451

Plain Vitreous Pearl Bowl; Round Corner Oak Tank with Nickel-plated Brass Brackets and Automatic Seat Operating Flush Valve; Nickel-plated Brass Seat Operating Rod and Guide; Automatic Oak Seat (no Cover) with Heavy Nickel-plated Brass Extension Arms to Operating Rod; Nickel-plated Flush and Supply Pipes with Wall Supports; Floor Screws and Washers, Complete.

Price, as described	29.00
Add for 3-lb. Lead Lining in Tank	1.00
" " ⅜-inch Slip Joint Floor Flange	.40
" " Brass Floor Flange and Gasket	.75
" " Wheel Handle Stop on Supply Pipe	1.00
" " Weighted Self-raising Seat	1.50

Especially adapted to schools and public buildings.

WATER CLOSETS

SYPHON JET

Plate E461

Vitreous China Syphon Jet Bowl, Birch Seat and Cover, Mahogany Finish, Nickel-plated Cast Brass Post Hinges, 8-gallon Vitreous China High Tank on Concealed Supports, with Ball Cock, Flush Valve, Chain and Pull, 1½-inch Nickel-plated Flush Pipe and Holder, and Floor Bolts with China Caps.

Price, Complete, as described..... 40.00

WATER CLOSETS

JETTIES SYPHON JET CLOSET

Plate E471

Plain Vitreous Jetties Bowl; Round Corner Oak Tank with Nickel-plated Brass Brackets; Nickel-plated Brass Rod Guide, Rod and China Pull; Oak Seat with Cover; Nickel-plated Flush and Supply Pipes with Wall Supports; Floor Screws and Washers, Complete.

Price, as described	36.00
Add for ⅜-inch Slip Joint Floor Flange	.40
" " Wheel Handle Stop on Supply Pipe	1.00
" " 3-pound Lead Lining in Tank	1.00
" " Brass Floor Flange and Gasket	.75

VITREOUS CHINA WATER CLOSETS

SYPHON WASH DOWN

Plate E481

Vitreous China Syphon Wash Down Bowl, Cherry Seat and Cover, Nickel-plated Brass Offset Hinges, 8-gallon Vitreous China High Tank on Concealed Supports with Ball Cock, Flush Valve, Chain and Pull, 1¼-inch Nickel-plated Flush Pipe and Holder, Nickel-plated Supply Pipe to Wall and Floor Bolts with China Caps.

Price, Complete, as described 35.80

WATER CLOSETS

SYPHON WASH DOWN

ENAMELED IRON

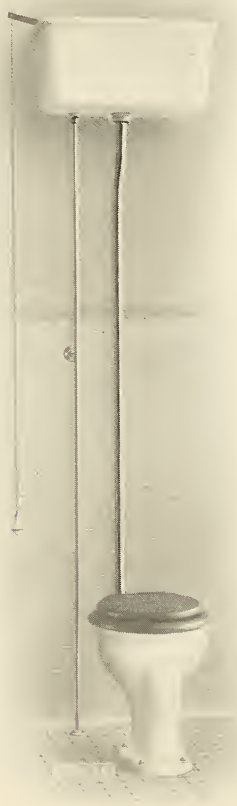


Plate E191

Enameled Iron Syphon Wash Down Bowl with Oak Seat and Cover with Nickel-plated Cast Brass Hinges, Enameled In and Out High Tank with High Pressure Ball Cock, Gooseneck Flush Valve, Nickel-plated Flush and Supply Pipes and Holders, Chain and Pull, Nickel-plated Floor Screws and Washers.

Seat furnished in Natural or Golden Oak or Birch Mahogany.

Price, as described, with 18x10x9-inch Tank 35.50
" " " " 20x10x10 " " 38.00

WATER CLOSETS

PEARL SYPHON WASHDOWN CLOSET

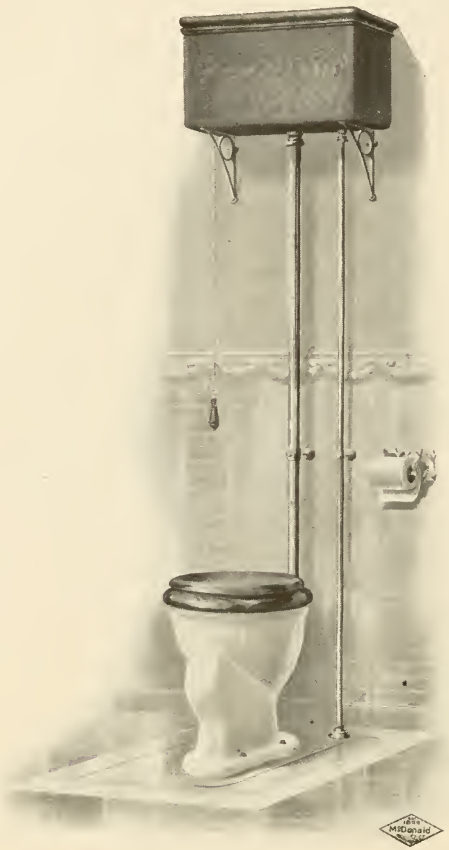


Plate E501

Plain Vitreous Pearl Bowl; Round Corner Oak Tank with Bronzed Iron Brackets; Nickel-plated Brass Chain and Pull; Oak Seat with Cover; Nickel-plated Flush and Supply Pipes with Wall Supports; Floor Screws and Washers, Complete.

Price, as described	22.50
Add for ⅜-inch Slip Joint Floor Flange	.40
" " Brass Floor Flange and Gasket	.75
" " 3-pound Lead Lining in Tank	1.00
" " Wheel Handle Stop on Supply Pipe	1.00

WATER CLOSETS

SYPHON JET, WITH SLOAN VALVE

Plate E511

Vitreous Syphon Jet Water Closet with Special Heavy Syphon Jet Bowl with Extended Lip and Cut Back Rim and Extended Inlet, Sloan's "Royal" Nickel-plated Flush Valve with China Lever Operating Handle, Nickel-plated Flush Connections, Nickel-plated Heavy Cast Brass Spud Nut with Nickel-plated Escutcheon, Nickel-plated Wall Escutcheon, Ariston Open Front and Rear, Polished Saddle Seat with Extra Heavy Bar Hinge and Nickel-plated Brass Re-enforcing Bars, "Renton's" Cast Brass Floor Flange with Graphite Gasket, Floor Bolts, Screws, Washers and China Bolt Caps.

Seats can be furnished in Quarter-Sawed Natural or Golden Oak or Birch Mahogany, Polished Finish.

Price, as described 45.00

If with Nickel-plated Polished Stop Valve for Supply, add 2.00
" " Wall Outlet Waste, add 2.50
" " Snow White Seat, add 2.50

This bowl, with its extended lip and cut back rim, gives an opening of 16 inches, which is 4 inches more non-soiling space than on any ordinary closet. It has a water surface of 14x11 inches, deep seal and a 2⅝-inch opening through trap. Height of bowl, 14½ inches.

WATER CLOSETS

SYPHON JET, WALL OUTLET WITH SLOAN VALVE

Plate E521

"Vitreous Wall" Syphon Jet Water Closet, with Extra Heavy Syphon Jet Bowl with Extended Inlet and Wall Outlet Waste, Sloan's "Royal" Nickel-plated Flush Valve with Extended Seat Bumper and China Lever Operating Handle, Nickel-plated Flush Connection, Nickel-plated Heavy Cast Brass Spud Nuts with Nickel-plated Escutcheon, Nickel-plated Wall Escutcheon, "Bulldog" Full Saddle Polished Seat and Turtle Back Cover with Extra Heavy Cast Brass Bar Hinges, "Renton's" Cast Brass Floor Flange with Graphite Gasket, Floor Bolts, Screws, Washers and China Bolt Caps.

Seats can be furnished in Quarter-Sawed Natural or Golden Oak or Birch Mahogany, Polished Finish.

Price, as described	42.50

If with Nickel-plated Polished Stop Valve for Supply, add	2.00
" " Extended Front Lip and Open Pattern Full Saddle Seat with Nickel-plated Re-enforcing Ring, add	2.50
" " Snow White Full Saddle Seat with Turtle Back Cover, add	3.00

"Royal" Flush Valves cannot be held open to waste water and do not require regulating, as they flush the same amount under any pressure between 5 and 100 pounds.

Valve has 1-inch back inlet, union outlet 3 inches long, 1½ or 1¼-inch outside diameter, as ordered. Handle furnished nickel-plated when so ordered. Valve may be furnished with lock shield gate valve, at extra charge.

WATER CLOSETS

REVERSE TRAP SYPHON WITH SLOAN VALVE

Plate E531

Vitreous Siphon Action Water Closet with Heavy Syphon Action Reverse Trap Bowl, Sloan's "Royal" Nickel-plated Flush Valve with Extended Seat Bumper and China Lever Operating Handle, Nickel-plated Flush Connection, Nickel-plated Cast Brass Flush Elbow with Heavy Cast Brass Nuts, Nickel-plated Wall Escutcheon, "Bulldog" Full Saddle Polished Seat and Turtle Back Cover with Extra Heavy Cast Brass Bar Hinges, "Renton's" Cast Brass Floor Flange with Graphite Gasket, Floor Bolts, Screws, Washers and China Bolt Caps.

Seats can be furnished in Quarter-Sawed Natural or Golden Oak or Birch Mahogany, Polished Finish.

Price, as described	32.50

If with Nickel-plated Polished Stop Valve for Supply, add	2.00
" " Snow White Full Saddle Seat with Turtle Back Cover, add	3.00
" " Extended Lip and Open Front Seat, add	2.50

Valve can be furnished with nickel-plated brass handle at the same price.

"Royal" Flush Valves cannot be held open to waste water and do not require regulating, as they flush the same amount under any pressure between 5 and 100 pounds.

Valve has 1-inch back inlet, union outlet 3 inches long, 1½ or 1¼-inch outside diameter, as ordered. Handle furnished nickel-plated when so ordered. Valve may be furnished with lock shield gate valve, at extra charge.

WATER CLOSETS

SYPHON WASH DOWN, WITH SLOAN VALVE

Plate E541

Vitreous Syphon Wash Down Water Closet with Heavy Syphon Wash Down Bowl, Sloan's "Royal" Nickel-plated Flushing Valve with Extended Seat Bumper and China Lever Operating Handle, Nickel-plated Flush Connection, Nickel-plated Cast Brass Flush Elbow with Heavy Cast Brass Nuts, Nickel-plated Wall Escutcheon, "Bulldog" Semi-Saddle Polished Seat and Cover with Heavy Cast Brass Hinges. "Renton's" Cast Brass Floor Flange with Graphite Gasket, Floor Bolts, Screws, Washers and China Bolt Caps.

Seat can be furnished in Natural or Golden Oak or Birch Mahogany, Polished Finish.

Price, as described	27.50

If with Nickel-plated Polished Stop Valve for Supply, add	2.00
" " Snow White Semi-Saddle Seat and Cover, add	3.00

"Royal" Flush Valves cannot be held open to waste water and do not require regulating, as they flush the same amount under any pressure between 5 and 100 pounds.

Valve has 1-inch back inlet, union outlet 3 inches long, 1½ or 1¼-inch outside diameter, as ordered. Handle furnished nickel-plated when so ordered. Valve may be furnished with lock shield gate valve at extra charge.

WATER CLOSETS

SYPHON JET WITH ROYAL FLUSH VALVE

Plate E551

Seat Action Syphon Jet Closet with Vitreous China Syphon Jet Bowl, Sloan's No. 9 Nickel-plated "Royal" Automatic Seat-Operating Flush Valve, Polished Golden Oak Seat with Nickel-plated Brass Adjustable Bar Hinge, Nickel-plated Brass Floor Flange, Bolts and Gasket.

Price, as described	45.50

If with Ball Weights to hold Seat in Vertical Position, add	8.00
" " Extended Sanitary Lip Bowl and Open Front Seat, add	6.00
" " Raised Front Bowl and Open Front Seat, add	4.00
" " " Rear Vent, add	9.00
" " Gate Valve, add	2.50
" without Brass Floor Flange, Bolts and Gasket, deduct	1.00

Can also be furnished in Juvenile Height.

Can also be furnished with Open Front and Back Seat.

Our seat-operating closets with "Royal" Flush Valves withstand rough usage and are especially adapted for schools and all other places where it is desirable to provide an automatic equipment. The least touch of the seat flushes the bowl.

Special Woodwork for Seats furnished to order.

Special catalogue showing all types, on application.

WATER CLOSETS

REVERSE TRAP SYPHON WITH ROYAL FLUSH VALVE

Plate E561

Reverse Trap Vitreous China Syphon Bowl, No. 37 Nickel-plated Automatic Seat-operating Royal Flush Valve, with Nickel-plated Cast Brass Adjustable Bar Hinge and Polished Oak Seat, Floor Screws and Washers.

Price, as described	38.00
If with Ball Weights to hold Seat in Vertical Position when not in use, add	8.00
" with Raised Rear Vent, add	9.00
" " " Front Bowl and Open Front Seat, add	4.00
" " Sanitary Extended Lip Bowl and 1½-inch Extended Lip Horseshoe Seat (less Cover), with Nickel-plated Extra Heavy Horseshoe Bar Hinges, add	8.00
" with Gate Valve, add	2.50

WATER CLOSETS

WALL CLOSET, WITH SLOAN VALVE

(Patented)

Plate E571

Vitreous China Jet Wall Closet With Wall Connections and Supports, Oak Seat and Cover with Nickel-plated Cast Brass Hinges, Royal Bronze Metal Royal Flush Valve concealed, with Oscillating China Handle and Wall Flange.

Seat in Natural, Antique or Golden Oak or Birch Mahogany.

Price, as described 45.00

Royal Flush Valves cannot be held open to waste water and do not require regulating, as they flush the same amount under any pressure between 5 and 100 pounds.

Valve has 1-inch inlet, union outlet 3 inches long, 1½ or 1¼ inches outside diameter, as ordered, and is furnished with inlet on back, right or left-hand side.

Pipe connection between valve and bowl, extra.

This fixture is adapted for use in office and public buildings.

WATER CLOSETS

WALL CLOSET, WITH SLOAN VALVE

Plate E581

Vitreous China Jet Wall Closet with Extended Sanitary Lip, Oak Open Front Seat, Nickel-plated Cast Brass Hinges, and Nickel-plated Royal Flush Valve with China Oscillating Handle.

Price, Complete, as described 45.00

Royal Flush Valves cannot be held open to waste water and do not require regulating, as they flush the same amount under any pressure between 5 and 100 pounds.

Valve has 1-inch Back Inlet and Union Outlet 3 inches long, 1½ or 1¼ inches outside diameter, as ordered. Nickel-plated Handle furnished instead of China, if desired. Lock Shield Gate Valve for Shut-off, extra.

A fixture admirably adapted for use in public buildings and institutions.

AUTOMATIC WATER CLOSETS

SYPHON JET
ENAMELED IRON
(Patented)

Plate E591

Enameled In and Out Iron Syphon Jet Bowl, Oak Seat with Nickel-plated Brass Hinges and Re-enforcing Plate, Nickel-plated "Osborn" Improved Automatic Valve, Galvanized Tank, Painted White Enamel, Tank Shelf, Nickel-plated Brass Flush Pipe and Holder, Floor Flange and Bolts.

Price, as described	41.00
If Bowl Enameled Inside only, deduct	2.00
" with Painted Iron Seat Re-enforcing Plate, Rough Brass Valve and Rough Brass Flush Pipe, deduct	3.50
" with Plain Galvanized Tank, deduct	3.00
" " Nickel-plated Brass Supply Pipe with Stop, add	1.50
" with Ball Joint Floor Flange, add	3.50

Plate E592

Plate E592 same as above except has low tank and flush connection instead of flush pipe.

Price, as described	40.00
If Bowl Enameled Inside only, deduct	2.00
" with Painted Iron Re-enforcing Plate, Rough Brass Valve and Rough Brass Flush Connection, deduct	3.00
" with Plain Galvanized Tank, deduct	3.00
" " Nickel-plated Supply Pipe with Stop, add	1.50
" " Ball Joint Floor Flange, add	3.50

AUTOMATIC WATER CLOSETS

SYPHON WASH DOWN

Plate E601

Vitreous China Syphon Wash Down Bowl with Jet, Golden Oak Seat with Nickel-plated Brass Hinge and Re-enforcing Plate, Nickel-plated "Osborn" Improved Automatic Valve, Galvanized Iron Tank Painted White Enamel, Tank Shelf, Nickel-plated Brass Flush Pipe and Holder, Nickel-plated Brass Supply Pipe with Stop, Cast Brass Floor Flange and Bolts.

Price, as described	41.00
If with Painted Iron Seat Re-enforcing Plate, Rough Brass Valve, Rough Brass Flush and Supply Pipes, deduct	3.50
If with Plain Galvanized Tank, deduct	3.00
" without Supply Pipe and Stop, "	1.50
" with Ball Joint Floor Flange, add	3.50
" " Durham Brass Floor Flange, add	2.00

Either of these closets may be furnished with Juvenile Bowl at same price.

Plate E602 closet same as above except has low tank and flush connection instead of flush pipe.

Price, as described	40.00
If with Painted Iron Seat Re-enforcing Plate, Rough Brass Valve and Rough Brass Flush Connection, deduct	3.00
If with Plain Galvanized Tank, deduct	3.00
" without Supply Pipe and Stop, "	1.50
" with Ball Joint Floor Flange, add	3.50
" " Durham Brass Floor Flange, add	2.00

Plate E602

AUTOMATIC WATER CLOSETS

SYPHON WASH DOWN

ENAMELED IRON

(Patented)

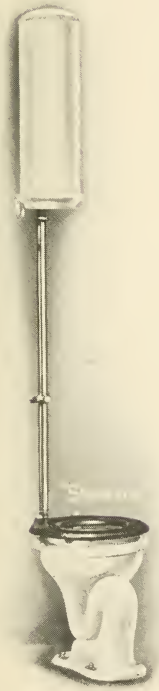


Plate E611

Enameled In and Out Iron Syphon Wash Down Bowl, Oak Seat with Nickel-plated Hinges and Re-enforcing Plate, "Osborn" Improved Automatic Valve, Galvanized Iron Tank Painted White Enamel, Tank Shelf, Nickel-plated Brass Flush Pipe and Holder, Floor Flange and Bolts.

Price, as described	37.00
If Bowl Enameled Inside only, deduct	2.00
" with Painted Iron Seat Re-enforcing Plate, Rough Brass Valve and Rough Brass Flush Pipe, deduct	3.50
" with Plain Galvanized Tank, deduct	3.00
" with Nickel-plated Brass Supply Pipe with Stop, add	1.50
" with Ball Joint Floor Flange, add	3.50

Plate E612 is same as above except has low tank with flush connection instead of Flush pipe.

Price, as described	36.00
If Bowl Enameled Inside only, deduct	2.00
" with Painted Iron Seat Re-enforcing Plate, Rough Brass Valve and Rough Brass Flush Connection, deduct	3.00
" with Plain Galvanized Tank, deduct	3.00
" with Nickel-plated Supply Pipe with Stop, add	1.50
" with Ball Joint Floor Flange, add	3.50

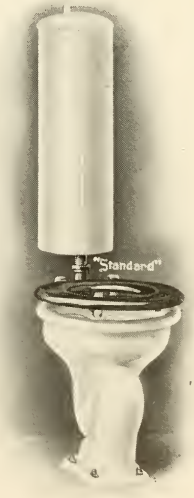


Plate E612

VOGEL AUTOMATIC WATER CLOSETS

WITH CONCEALED TANK

No. 6

Plate E621

Vitreous China Syphon Wash Down Bowl, Golden Oak Varnish Finish Re-enforced Seat, Nickel-plated Brass Flush Valve, Galvanized Pressure Tank.

Price, as described 36.00

Valve is accessible above bowl, with tank concealed. Positive in action; does not depend on city water pressure to operate it. Works successfully on water pressures of 15 to 100 pounds. When seat is depressed the flush valve is closed and the supply valve opened, allowing the water to enter the air-tight tank until the air and water pressures are equalized. When seat is released the supply valve closes and the flush valve opens, allowing a strong pressure to flush the bowl.

Fixture furnished complete as shown less water supply pipe.

VOGEL FROST-PROOF CLOSETS

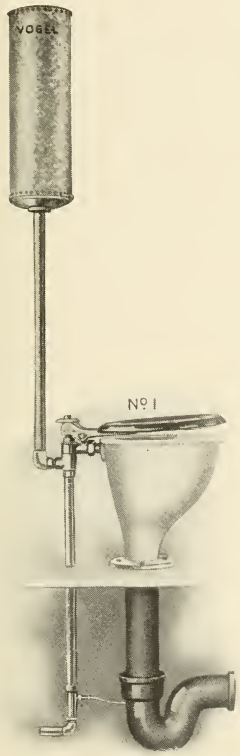


Plate E631

These closets are simple, strong and durable and require no pit. Are quickly and economically installed, as the valve may be covered with earth as soon as connection with the water supply is made. Valve parts can be easily removed from above the floor. Bowls have special design one-half roll enameled rims.

COMBINATION No. 1

Depressing the seat raises the rod, allowing the tank to fill, after which no more water enters until the closet is again used. Releasing the seat allows a strong flush direct from tank to hopper, after which the water in valve casing passes down through waste valve (below frost line) into the sewer, leaving the entire fixture empty. By means of the pressure tank an ample flush is secured without unnecessary waste of water.

Price, Enameled Inside, Tall Oval Enameled Roll Flush Rim Hopper with Reenforced Hardwood Seat, 8x24-inch Galvanized Pressure Tank, Supply and Flush Valves Assembled with 3-foot 3-inch Valve Rod and Casing	each	17.00
If Hopper Enameled Inside and Outside, add	each	2.50
with Self-raising Seat, add	"	.75
If with Earthenware Bowl, add	"	5.00

COMBINATION No. 2

This contains but one washer and flushes while in use, after which no water remains in the fixture or casing.

Price, Enameled Inside Hopper with Brass Fan Wash, Enameled Roll Flush Rim, Hardwood Seat, Valve Assembled with 3-foot 3-inch Valve Rod and Casing	each	10.00
If Hopper Enameled Inside and Outside, add	each	2.50
" with Self-raising Seat, add	"	.75

Combinations with hoppers having 4-inch outlets for calking into bell end of soil pipe, furnished at same price. Flanged hoppers will be furnished unless otherwise ordered.

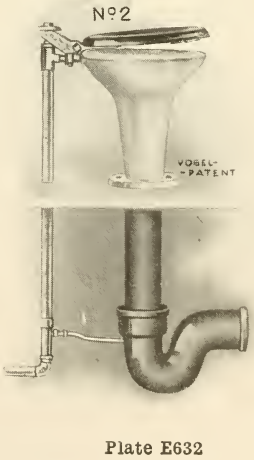


Plate E632

CLOSET TANKS

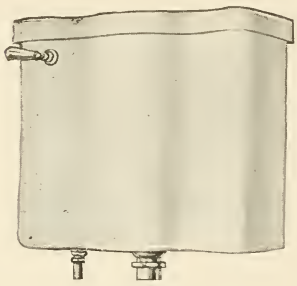


Plate E641

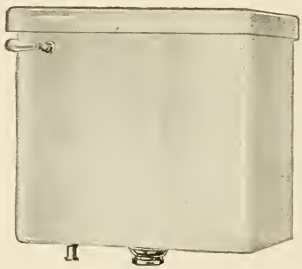


Plate E642

Plate E641A — Vitreous Tank fitted with Integral Vitreous Syphon, Elevated McDonald Reliable Ball Cock, Syphon Seat and Valve, Thumb Lever, N. P. Union Flush Ell, I. P. Size N. P. Supply . . complete **18.50**

" E641B — Do. Tank only . . . . . each **14.50**

" E641C — Vitreous Tank fitted with Galvanized C. I. Syphon, Elevated McDonald Reliable Ball Cock, Syphon Valve, Thumb Lever and N. P. Union Flush Ell, I. P. Size, N. P. Supply, Complete . . each **17.25**

" E642A — Vitreous China Tank fitted with Regal Float Fixtures, Including Syphon, Syphon Plunger, High Pressure Ball Cock, Thumb Lever, N. P. Flush Ell and I. P. Size N. P. Supply, Complete . . . . . each **16.00**

" E642B — Tank only . . . . . " **11.50**

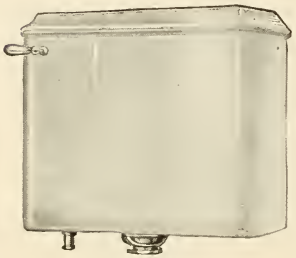


Plate E643

Plate E644

Plate E643A — Enameled Cast Iron Tank with Rival Fixtures, Including Galvanized Syphon, Plunger, McDonald Reliable Ball Cock, N. P. China Thumb Lever, N. P. Union Flush Ell and I. P. Size N. P. Supply Pipe Complete . . . . . each **18.50**

" E643B — Enameled Cast Iron Tank with Regal Fixtures Including Syphon Seat, Rubber Ball, N. P. China Thumb Lever, McDonald Reliable Ball Cock, N. P. Union Flush Ell and I. P. Size N. P. Supply Pipe, Complete . . . . . each **17.00**

" E644A — Vitreous China Tank with Seneca Fittings Including Syphon Seat, Rubber Ball, N. P. China Thumb Lever, McDonald Ball Cock, N. P. Flush Ell and I. P. Size N. P. Supplies, as described . . each **15.00**

" E644B — Vitreous Tank only . . . . . " **11.00**

CLOSET TANKS

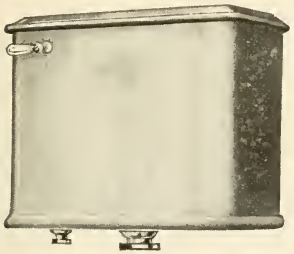


Plate E651

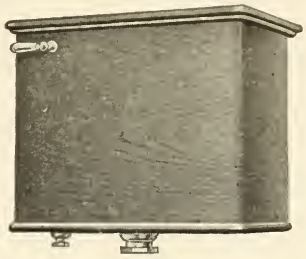


Plate E652

Plate E651—Enameled In and Out Steel Tank with Rival Fixtures including Galvanized Syphon, McDonald Reliable Ball Cock, N. P. Union Flush Ell and I. P. Size N. P. Supply Pipe, Complete.....each **14.50**

" E651—Enameled In and Out Steel Tank with Regal Float Fixtures including Syphon Seat, Rubber Flush Ball, McDonald High Pressure Ball Cock, N. P. Flush Ell and I. P. Size N. P. Supply Pipe, Complete.....each **13.25**

" E651—Tank only..... " **9.00**

" E652—Wood Tank with Rival Fixtures including Galvanized Syphon, McDonald Reliable Ball Cock, N. P. Union Flush Ell and I. P. Size N. P. Supply Pipe, Complete.....each **13.00**

" E652—Wood Tank with Regal Float Fixtures including Syphon Seat, Rubber Flush Ball, McDonald High Pressure Ball Cock, N. P. Flush Ell and I. P. Size N. P. Supply Pipe, Complete.....each **11.75**

" E652—Tank only with Copper Lining..... " **7.50**

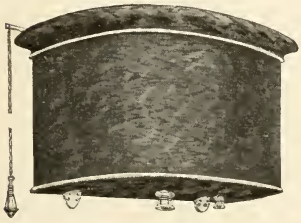


Plate E653

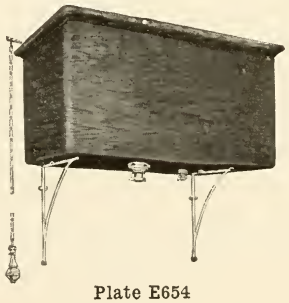


Plate E654

Plate E653—20x12x10 Quartered Oak Bent Wood Tank with Copper Lining, Galvanized Syphon, McDonald High Pressure Ball Cock, N. P. Chain and China Pull, and Angle Clamps, Complete.....each **11.00**

" E653—Tank only Copper Lined..... " **7.50**

" E654—18x9x9 Wood Tank with Copper Lining, Galvanized Syphon, McDonald High Pressure Ball Cock, N. P. Chain and China Pull, and N. P. Iron Brackets, Complete.....each **8.75**

" E654—Tank only, Copper Lined..... " **5.75**

WATER CLOSET FLUSH AND SUPPLY PIPES

FLUSH PIPES
STRAIGHT OFFSET

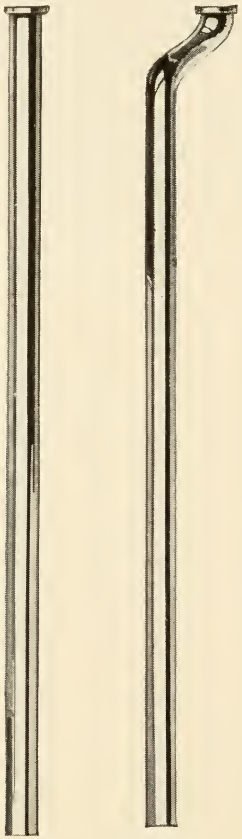


Plate E661 Plate E662

SUPPLY PIPES
STRAIGHT OFFSET

Plate E663 Plate E664

SUPPLY PIPES
FOR LOW TANKS

PLAIN

Plate E665

WITH COCK

Plate E666

In ordering flush and supply pipes always send coupling nut from both flush and supply tank spuds, and state distance (when offset pipes are wanted) from center of flush and also supply spuds to back of tank.

FLUSH PIPES

Size, No. 20 Gauge ..... inches	1¼	1⅜	1½
Price, Nickel-plated, Straight, 6 feet Long ..... each	2.00	2.30	2.40
" " " Offset, 6 " " ..... "	2.30	2.50	2.60

SUPPLY PIPES

Size ..... inches	21/32—No. 14 Ga.	⅜ I. P.	½ I. P.
Price, Nickel-plated, Straight, 7 feet Long ..... each	2.00	2.60	3.90
" " " Offset, 7 " " ..... "	2.30	3.00	4.30

For pipes with a larger offset than 3½ inches, extra charge will be made.

SUPPLY PIPES FOR LOW TANKS

Size ..... inches	21/32—No. 14 Ga.	⅜ I. P.
Price, Nickle-plated, Plain ..... each	50	1.00
" " " with Cock ..... "	1.10	1.60

VITREOUS CHINA CLOSET BOWLS

PLAIN OVAL SYPHON JET

Plate E671

JUVENILE SYPHON JET
WITH CONCEALED JET PIPE

Plate E672

Vitreous China Plain Oval Syphon Jet Bowl for High or Low Tanks..... 17.00

Vitreous China Juvenile Syphon Jet Bowl with Concealed Jet Pipe..... 17.00

This bowl measures 13 inches high.

Seat Attachments and Spuds extra.

SYPHON JET WITH EXTENDED LIP

Plate E673

SYPHON JET WITH
RAISED FRONT LIP AND CENTER OUTLET

Plate E674

Vitreous China Syphon Jet Bowl with Extended Lip, for High or Low Tank. 17.40

Furnished either 14-inch or standard height.

Vitreous China Syphon Jet Bowl with Raised Front Lip and Center Outlet.. Net

This bowl is for installation in ladies' toilet and will operate with either high or low tank.

Seat Attachments and Spuds extra.

VITREOUS CHINA CLOSET BOWLS

SYPHON WASH DOWN

REVERSE TRAP SYPHON WASH DOWN

Plate E681

PLAIN SYPHON WASH DOWN

Plate E682

Vitreous Reverse Trap Syphon Wash Down Bowl, for High or Low Tank..... **10.00**
" Plain Syphon Wash Down Bowl, for High or Low Tank..... **8.50**

WITH JET

Plate E683

WITH EXTRA EXTENDED BACK OUTLET

Plate E684

Vitreous Wash Down with Jet Standard or Juvenile Height..... **10.00**
" " " " Short Extended Back Outlet **11.00**
" " " " Long " " " **14.00**

Spuds, couplings and seat attachments extra as below.

Size.....inches	1¼	1½	2
Price, Rough Brass Coupling, with Spud and Jam Nut, Complete....each	.75	1.00	1.40
" Fin. " " " " " " " " " .... "	1.25	1.50	1.90
" N. P. " " " " " " " " " .... "	2.00	2.25	2.60

Spud and jam nut only, half above lists. Seat attachments, net extra.
Wash down bowls furnished with center or back outlet.

ENAMELED IRON CLOSET BOWLS

SYPHON JET

Plate E691

Enameled Inside and Outside Iron Syphon Jet Bowl with 2-inch Brass Flush Spud 23.00

Furnished with 1½-inch Spud for High Tank at same price. Also furnished with local Vent, Right or Left, if desired, or in Juvenile height (13 inches), also with Combined Seat and Flushing Rim at special price.

SYPHON WASH DOWN

Plate E692

Enameled Inside and Outside Iron Syphon Wash Down Bowl with 1¼-inch Brass Flush Spud 19.00
If with Trap Vent, add 1.00

Furnished with 2-inch Spud for Low Tank at same price. Also furnished with local Vent, Right or Left, also furnished with Combined Seat and Flushing Rim at special price.

CLOSET SEATS

CELLO WITH COVER

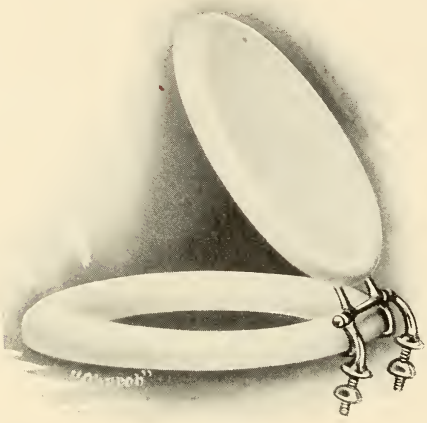


Plate E701

CELLO OPEN FRONT

Plate E702

Cello with Cover—White Oval Seat and Cover with Nickel-plated Cast Brass Bar Hinges 6.50
Deduct for Cover 1.00
Cello Open Front—White Open Front Seat without Cover, with Nickel-plated Cast Brass Bar Hinges 6.75

EXCELLO No. 30

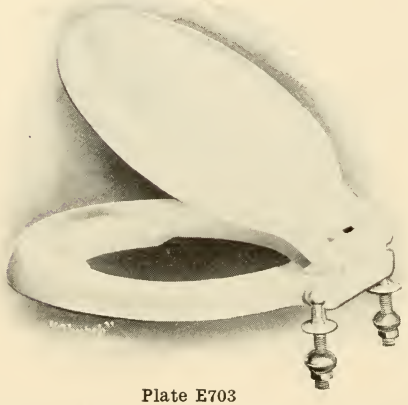


Plate E703

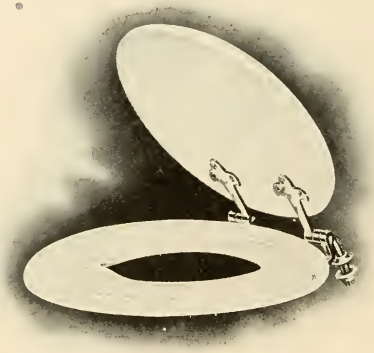


Plate E704

Excello—White Saddle Seat and Cover 14.00
Deduct for Cover 7.00
No. 30—Saddle Seat and Cover, White Pyralin Covered, Nickel-plated Brass Hinges and Rubber Bumpers 10.00
If without Cover, deduct 1.50

White is a preparation of celluloid and is applied in sheet form (not sprayed.) It is guaranteed not to split, chip, crack or flake, or turn yellow. Only soap and water needed to keep clean. It is impervious to natural heat or cold, and urine will not effect it in any way.

CLOSET SEATS

THE B.B.C.Co WHALE-BONE-ITE SEAT

No joints to open. Will not crack, split or warp. Not affected by moisture or action of uric acids. Unqualifiedly guaranteed. Made from a hard rubber composition similar to that bowling balls are made of. Particularly adapted for all public buildings, hospitals, and comfort stations.

No. 15-9

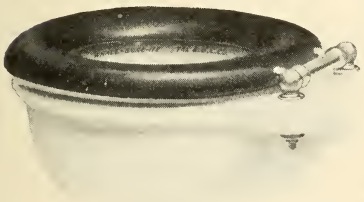


Plate E711

No. 16-91

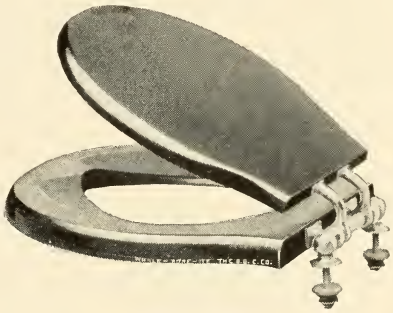


Plate E712

No. 15- 9—Ebony Finish, Round Seat with Cover and Nickel-plated Hinges. . each 7.20
" 15- 9—Mahogany Finish, Round Seat with Cover and Nickel-plated Hinges " 8.70
" 15-91—Ebony Finish, Round Seat without Cover, with " " " " 12.20
" 15-91—Mahogany Finish, Round Seat, without Cover, with N. P. Hinges. " 14.70
" 16- 9—Ebony Finish, Saddle Seat with Cover and Nickel-plated Hinges. . " 8.50
" 16- 9—Mahogany Finish, Saddle Seat with Cover and Nickel-plated Hinges " 10.20
" 16-91—Ebony Finish, Saddle Seat without Cover, with " " " " 13.50
" 16-91—Mahogany Finish, Saddle Seat, without Cover, with N. P. Hinges " 16.20

No. 18-5

Plate E713

No. 23-9

Plate E714

No. 18-5—Ebony Finish, Open Front and Back Seat without Cover, with N. P. Hinges ..... each 9.30
" 18-5—Mahogany Finish, Open Front and Back Seat without Cover, with N. P. Hinges ..... each 10.70
" 23-9—Ebony Finish Saddle Seat without Cover, with N. P. Hinges..... " 8.70
" 23-9—Mahogany Finish Saddle Seat without Cover, with N. P. Hinges .. " 10.50

Always use numbers and state if with straight or offset post hinges.

All hinge posts 5½ inches center to center can be furnished up to 9 inches center to center.

Plate E721

CLOSET SEATS

These seats embody all the features of an up-to-date sanitary seat, and are practically indestructible.

They are made with long steel lock bolts that clamp the wood together and on which bolts are also held the hinges. The posts of the hinge that are fastened to the closet are made of steel and unlike other hinges of cast brass, cannot break.

Not a wood screw is used in these seats, and having no hinge leaves on the seat or cover exposed to corrode or tarnish, and being also constructed with a view to durability and neatness, can unqualifiedly be called the "invincible seat."

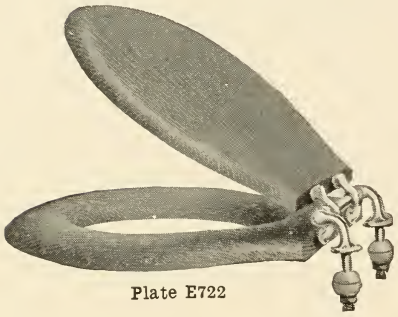


Plate E722

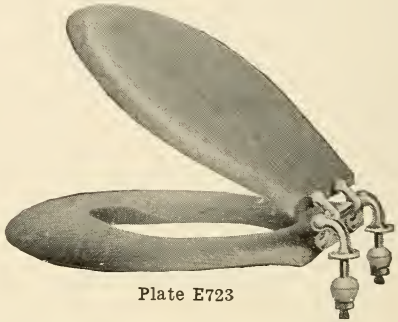


Plate E723

Fig. 6133B—1¼-inch Oak Seat and Cover with Nickel-plated Interlocking Bar Hinge..... 4.00

Fig. 6133C—1¼-inch Oak Semi-Saddle Seat and Cover with Nickel-plated Interlocking Bar Hinge..... 4.50

Fig. 6133D—1¼-inch Open Front Oak Seat and Cover with Nickel-plated Interlocking Bar Hinge..... 4.00

Furnished in Natural or Golden Oak or Birch Mahogany, Polish Finish.

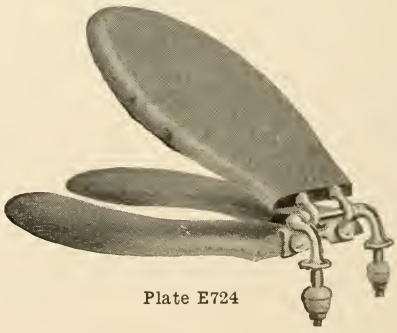


Plate E724

CLOSET SEATS

No. 794x60

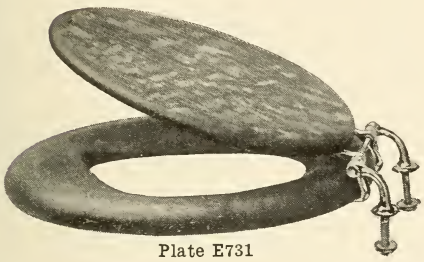


Plate E731

No. 72x14

Plate E732

No. 794x60—1¼-inch Oak or Mahogany Finish Semi-saddle Seat and Cover with Non-opening Joints and Nickel-plated Cast Brass Bar Hinge ..... each 5.00

No. 72x14—1½-inch Oak or Mahogany Finish Hotel Type Saddle Seat with Non-opening Joints, Massive Nickel-plated Cast Brass Bolted Bar Hinge and Heavy Brass Re-enforcing Plate..... each 6.50

No. 594x35

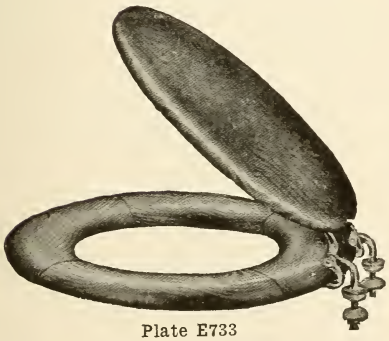


Plate E733

No. 600x11

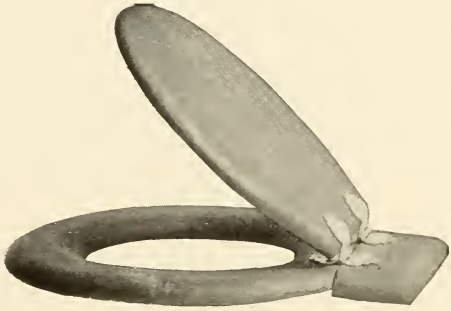


Plate E734

No. 594x35—1¼-inch Oak or Mahogany Finish Seat and Cover with Non-opening Joints and Nickel-plated Cast Brass Hinge..... each 4.50

No. 600x11—1¼-inch Oak Seat and Cover with Back Strip, Non-opening Joints and Nickel-plated Brass Hinge ..... each 4.00

IRON HOPPER CLOSETS

SHORT ROUND FLUSHING RIM, HARDWOOD SEATS

WITHOUT VALVE

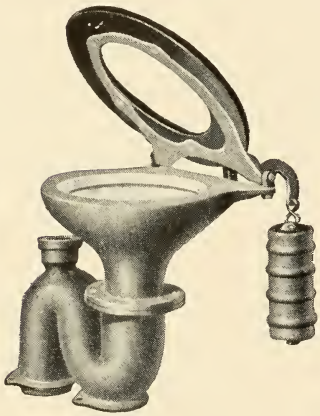


Plate E741

WITH VALVE

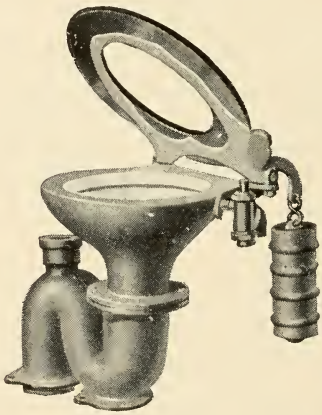


Plate E742

Price, without Valve, Enameled Inside, on	Painted Trap ..... each	11.00
" " " " " "	Enameled " ..... "	11.75
" with " " " "	Painted " ..... "	13.00
" " " " " "	Enameled " ..... "	13.75

PHILADELPHIA PATTERN

NEW STYLE

Plate E743

OLD STYLE

Plate E744

Description	Enameled Inside	Enameled Inside and Outside
Price, New Style ..... each	2.75	4.25
" Old " ..... "	2.75	4.25

IRON HOPPER TRAPS

LOW PATTERN
WITHOUT VENT

FULL "S," FOR IRON PIPE

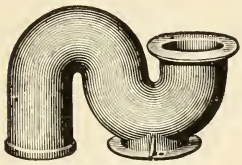


Plate E751

FULL "S," FOR LEAD PIPE

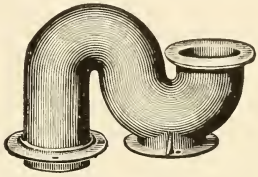


Plate E752

½ "S," FOR IRON PIPE

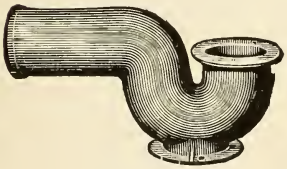


Plate E753

¾ "S," FOR IRON PIPE

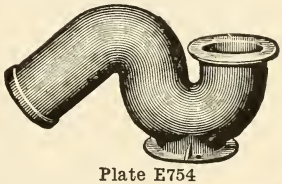


Plate E754

Price, for Iron or Lead Pipe Connection,	Painted ..... each	2.00
" " " " " " "	Enameled Inside ..... "	2.50
" " " " " " "	" In and Out ..... "	5.00

WITH HUB VENT

FULL "S," FOR IRON PIPE

Plate E755

FULL "S," FOR LEAD PIPE

Plate E756

½ "S," FOR IRON PIPE

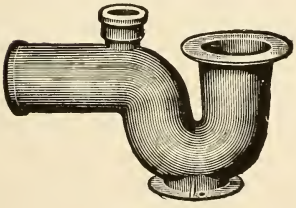


Plate E757

¾ "S," FOR IRON PIPE

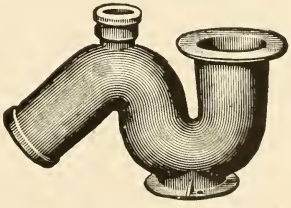


Plate E758

Price, for Iron or Lead Pipe Connection,	Painted ..... each	2.00
" " " " " " "	Enameled Inside ..... "	2.50
" " " " " " "	" In and Out ..... "	5.00

HOPPER COCKS, ETC.

KELLY STOP AND WASTE COCK

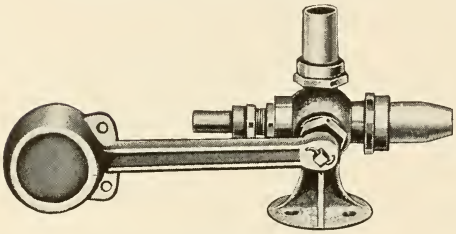


Plate E761

KELLY SELF-CLOSING HOPPER COCK

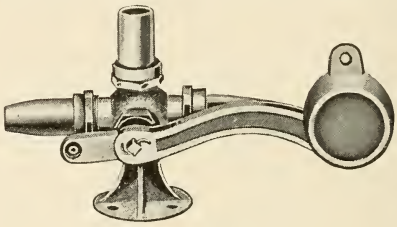


Plate E762

Price, Kelly Stop and Waste Cocks, for Lead or Iron Pipe	each	5.00
" " Hopper Cocks, for Lead or Iron Pipe	"	5.00
" " " " with Extra Weight and Rod for Seat Action	"	5.50

JOHNSON HOPPER COCK FOR IRON PIPE

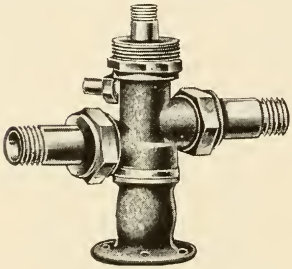


Plate E763

RAIN AND WELL WATER COCK FOR IRON PIPE

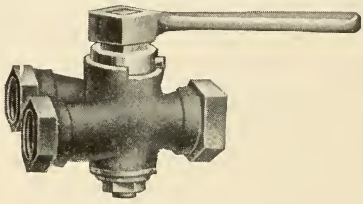


Plate E764

JOHNSON HOPPER COCKS

Price, Rough, for Iron Pipe	per dozen	36.00
" " " Lead "	"	38.40

RAIN AND WELL WATER COCKS

Size...inches	¾	1	1¼	1½	2
Price, Rough, for Iron Pipe...per dozen	72.00	108.00	180.00	300.00	516.00

CLOSET STALL PARTITIONS

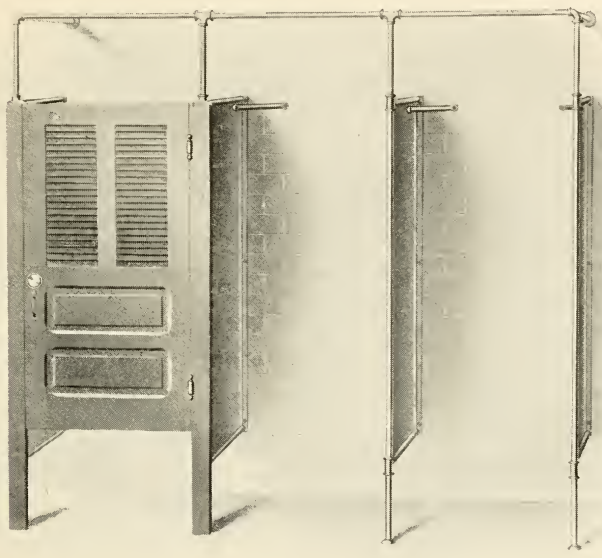


Plate E771

Steel Closet Stall Partitions with Tubular Frame Front, Top and Bottom, Flanged Angle Iron on Back, Standards with Flanges, Top Rail and Wall Braces, with Enclosed Stall, with Oak Door, for 30-inch Wide Enclosure, with Hinges, Pull and Indicator Bolt.

Partitions 3½ feet Wide, 5 feet High, Bottom 12 inches from Floor.

Price, Two Open and One Enclosed Stall	85.00
" for each additional Open Stall	17.50
" " " " Enclosed Stall	33.00
" One Open Single Stall	35.00
" for each additional Open Stall	17.50
" One Closed Single Stall	50.00
" for each additional Closed Stall	33.00
" " " Partition	15.00

Partitions regularly furnished painted one coat of White Iron Filler. Can be furnished with White Enamel Paint at additional cost.

GALVANIZED STEEL CLOSET STALLS

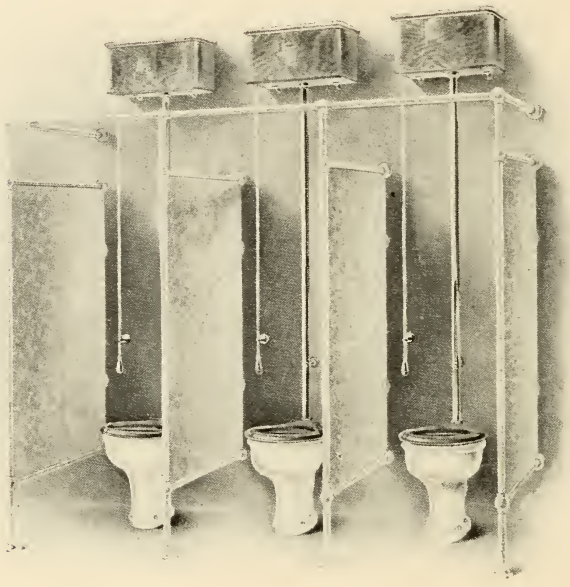


Plate E781

Galvanized Steel Closet Stalls with Galvanized Partitions, no Backs, Galvanized Piping, Legs and Frame, Clamps and Bolts.

DIMENSIONS

Height Inches	Width Inches	Height of Leg Inches	Distance between Partitions Inches
54	36	12	30

Gauge Number of Steel	16	14	10
Price, Two-stall	59.00	62.00	70.00
" Three "	74.00	79.00	84.00
" Four "	84.00	88.00	100.00
" Five "	102.00	106.00	120.00
" Six "	120.00	124.00	140.00
" Seven "	138.00	142.00	160.00
" Eight "	156.00	160.00	180.00
" Nine "	174.00	178.00	200.00
" Ten "	192.00	196.00	220.00

STEEL CLOSET STALLS

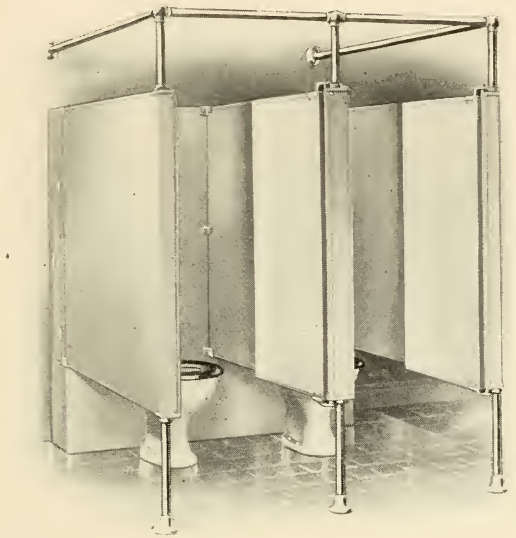


Plate E791

These stalls are hollow metal constructed, made of patent leveled steel, re-enforced with steel channel and electric welded. Standards and head rails 1-inch. Doors are swung on gravity hinges and stand open when stalls are not occupied. All surfaces are primed one coat of rust-resisting paint. All standard partitions are 48 inches high and set 17 inches from floor.

Size of Stall		Price		Price with Utility Chamber					
Width Inches	Depth Inches	Without Backs	With Backs 65 in. High	12-in. Space	14-in. Space	16-in. Space	18-in. Space	20-in. Space	24-in. Space
24	48	46.22	49.19	53.75	53.96	54.17	54.38	54.59	55.01
		27.35	30.32	31.10	31.16	31.22	31.28	31.34	31.46
30	48	47.14	50.54	55.30	55.22	55.75	55.97	56.20	56.65
		28.09	31.49	32.47	32.54	32.62	32.69	32.77	32.92
36	48	48.06	51.90	56.85	57.09	57.33	57.57	57.81	58.29
		28.83	32.67	33.84	33.93	34.02	34.11	34.20	34.38
24	54	47.60	50.57	55.13	55.34	55.55	55.76	55.97	56.39
		28.04	31.01	31.79	31.85	31.91	31.97	32.03	32.15
30	54	48.52	51.92	56.68	56.90	57.13	57.35	57.58	58.03
		28.78	32.18	33.16	33.23	33.31	33.38	33.46	33.61
24	60	48.98	51.95	56.51	56.72	56.93	57.14	57.35	57.77
		28.73	31.70	32.48	32.54	32.60	32.66	32.72	32.84
30	60	49.90	53.30	58.06	58.28	58.51	58.73	58.96	59.41
		29.47	32.87	33.85	33.92	34.00	34.07	34.15	34.30
36	60	50.82	54.66	59.61	59.85	60.09	60.33	60.57	61.05
		30.21	34.05	35.22	35.31	35.40	35.49	35.58	35.76

The first price quoted is for the first stall, the second price is for each additional stall.

Add to list price for additional posts against walls, etc. 4-inch posts, 7.45. 6-inch posts, 7.75 8-inch posts, 7.95.

When doors are used in utility space add to list price 5.00 each.

To arrive at shipping weights multiply the list price by five.

SPECIAL SINGLE VENTILATED SLATE CLOSET STALLS

FOR SCHOOLS AND PUBLIC BUILDINGS

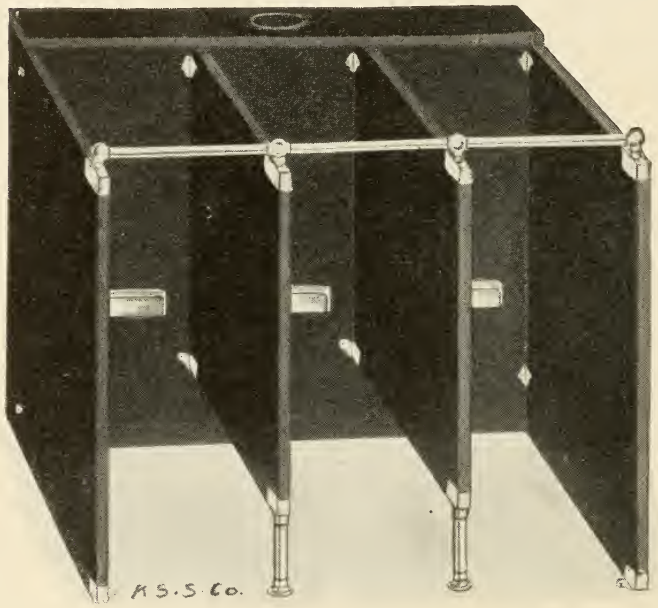


Plate E801

Special Single Ventilated Slate Closet Stalls with Back, Ends, Partitions and Caps Back and Ends to Floor; Center Slabs supported on 12-inch Legs. Clamps, Stirrups, Top Rail with Standards, Vent Hoods and Vent Flue Collar Nickel-plated.

Plans, dimensions and prices on application.

Special Single Ventilated Slate Closet Stalls with ventilating hoods at back over closet seats, are especially designed to complete ventilated toilet rooms in connection with the Ventilated Urinals. Ventilation is accomplished by ventilating hoods at back just over water closets, from which air passes into the air space behind the back and out through a vent flue projecting through the vent hole in the cap. An efficient draft is created by connecting this vent pipe with a warm air flue or chimney.

SOLID PORCELAIN BATHS

TO TILE INTO WALL

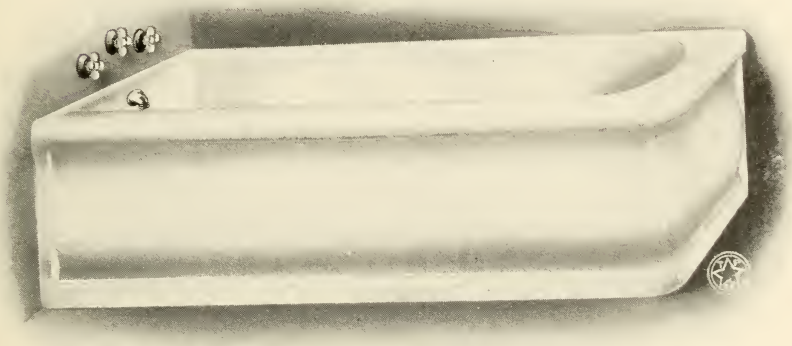


Plate E811

Solid Porcelain Bath on Base to tile in Left-Hand Corner, Glazed Inside and Outside Over All, fitted with Nickel-plated Top Nozzle Supply and Waste Fitting with Concealed Compression Valves and China Cross Handles.

Width Over All, 30 inches. Height to Top of Rim, 21 inches.

Depth Inside, 19 inches

Length.....feet	5	5½	6
Price, as described, Class A.....	160.80	169.80	192.80
" " " " B.....	114.55	122.80	143.90
" " Tub only " A.....	131.50	140.50	163.50
" " " " " B.....	93.00	102.00	125.00

Also furnished to tile in right-hand corner.
Supply pipes are not included in above prices.
Valves are tapped ¾-inch iron pipe.

SOLID PORCELAIN BATHS

TO TILE INTO WALL

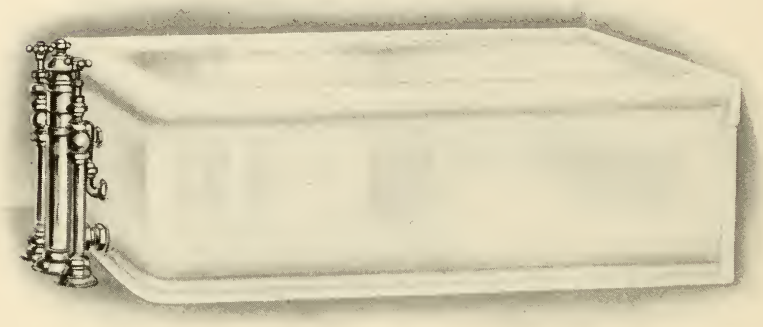


Plate E821

Solid Porcelain Bath on Base, to tile in Corner, Glazed Inside and Outside Over All, fitted with Nickel-plated Combination Compression Bell Supply and Waste Fitting with China Indexed Handles, Waste at Bottom through End.

DIMENSIONS

Width Over All, 39 inches. Height to Top of Rim, 21 inches.

Depth Inside, 19 inches.

Length.....feet	4½	5	5½	6	6½
Price, as described, Class A.....	151.55	159.55	168.55	191.55	223.05
" " " " B.....	107.80	113.30	121.55	142.65	161.00
" Tub Only " A.....	123.50	131.50	140.50	163.50	195.00
" " " " B.....	87.00	93.00	102.00	125.00	145.00

Furnished to tile in right-hand corner, as shown, or left-hand corner if desired.

SOLID PORCELAIN BATHS

TO TILE INTO CORNER

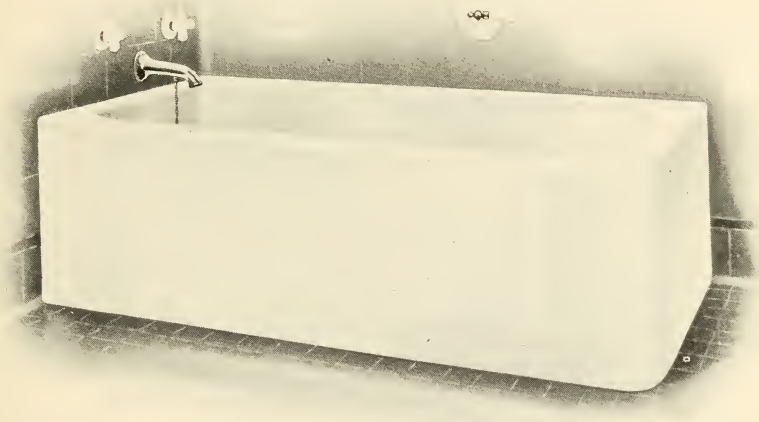


Plate E831

Solid Porcelain Bath to tile in Left-hand Corner, Glazed White Inside and Outside, Concealed Compression Supply Valves with China Cross Handles and China Escutcheons, Nickel-plated Supply Nozzle over Tub, Concealed Mixing Valve with China Handle and China Dial Plate, Waste Plug and Rubber Stopper.

DIMENSIONS

Width, Outside, 32½ inches.
Width, Inside, 27½ inches.
Height from Floor, 20 inches.
Depth, Inside, 18 inches.

Length.....feet	5	5½
Price, as described, Class A.....	150.00	160.00
" " " " B.....	105.00	112.00

Also furnished to tile in right-hand corner.

SOLID PORCELAIN BATHS

LIGHT WEIGHT

TO TILE INTO CORNER

Plate E841

Solid Porcelain Bath to tile in Right-hand Corner, Glazed Inside and Outside All Over, fitted with Concealed Supply and Waste Fitting at End Wall with Compression Valves with China Cross Handles and China Escutcheons.

DIMENSIONS

Width Over All, 29 inches. Height to Top of Rim, 19½ inches.
Depth Inside, 17 inches.

Length ..... feet	5	5½
Price, as described, Class A	111.40	121.90
" " " " B	90.40	100.90
" Tub only, less Fittings, Class A	82.00	92.50
" " " " " " B	61.00	71.50

This tub also furnished to tile in left-hand corner.

SOLID PORCELAIN BATHS

LIGHT WEIGHT

TO TILE INTO CORNER

Plate E851

Solid Porcelain Bath to tile in Right-hand Corner, Glazed White Inside and Outside All Over, fitted with Nickel-plated Combination Bell Supply and Waste Fitting with China Cross Handles on Compression Valves and China Knob on Waste. Waste at Bottom Through End.

DIMENSIONS

Width Outside, 29 inches. Height to Top of Rim, 19½ inches.
Depth Inside, 17 inches.

Length ..... feet	5	5½
Price, as described, Class A	107.50	118.00
" " " " B	86.50	97.00
" Tub only, less Fittings, Class A	82.00	92.50
" " " " " " B	61.00	71.50

Also furnished to tile in left-hand corner.
May also be furnished with Fuller Bell Supply and Waste Fitting.

SOLID PORCELAIN BATHS

LIGHT WEIGHT

TO TILE INTO RECESS

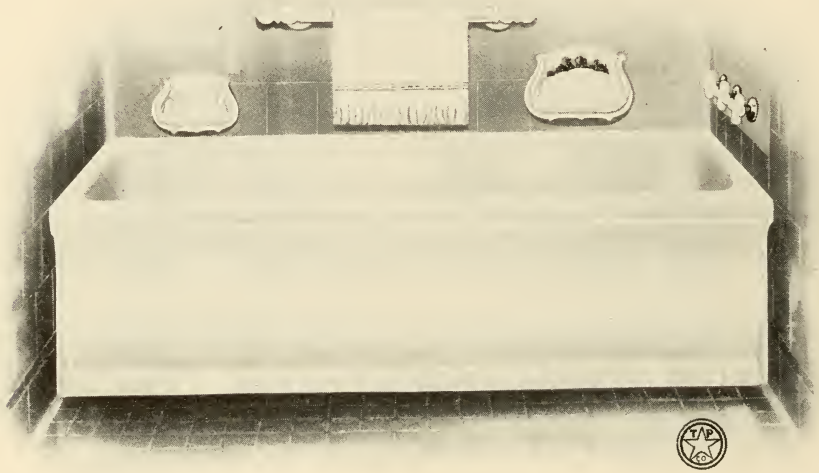


Plate E861

Solid Porcelain Bath to tile in Recess, Glazed Inside and Outside, Fitted with Compression Bell Supply and Waste Fitting with Concealed Valves and Solid China Cross Handles.

DIMENSIONS

Width Outside, 30 inches. Height to Top of Rim, 19 inches.

Depth, Inside, 17 inches.

Length.....feet	5	5½
Price, as described, Class A.....	108.75	119.25
" " " " B.....	87.75	98.25
" Tub only, less Fittings, Class A.....	79.35	89.85
" " " " " " B.....	58.35	68.85

May also be furnished with Fuller bell supply and waste fitting.

ENAMELED IRON BATHS

GUARANTEED

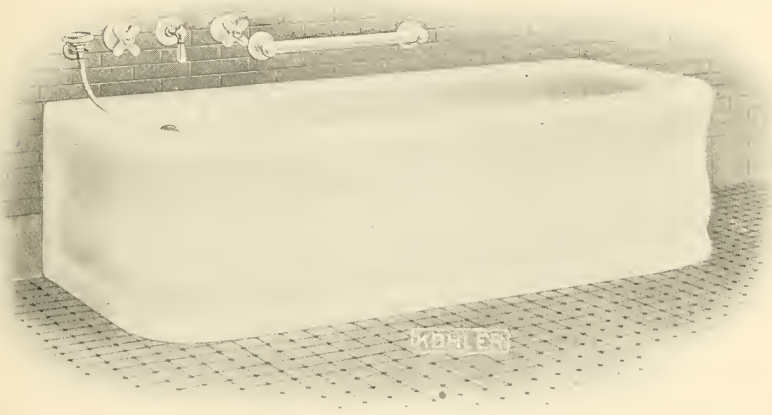


Plate E871

Enameled Iron Flat Bottom Bath with 4½-inch Rim and Enameled Iron Integral Apron, to tile 1½ inches into Wall and ½-inch into Floor, Concealed Combination Top Supply and Waste Fitting with Compression Valves, China Cross Handles, Rubber Hose and Shampoo Spray.

DIMENSIONS

Width over Rim, 34 inches.
Width of Rim, 4½ inches.
Depth Inside, 17 inches.
Floor to Top of Rim, 17½ inches.

Nominal Sizes.....feet	5	5½
Length Over All.....inches	62½	68½
Price, as described.....	**213.00**	**224.80**
" Tub only.....	**167.10**	**178.90**

Waste is shown at left-hand end, can also be furnished at right-hand end.

ENAMELED IRON BATHS

GUARANTEED

Plate E881

Enameled Iron Flat Bottom Bath for Right-Hand Corner with 4½-inch Rim, Enameled Iron Integral Apron, to tile 1½ inches into Walls and ½ inch into Floor, Nickel-plated Concealed Top Nozzle Supply and Waste Fitting with Compression Valves, Half-Union Supply Connections for ¾-inch Iron Pipe, China Indexed Four-Arm Handles, China Indexed Handle on Waste, Rubber Hose and Shampoo Spray.

DIMENSIONS

Width over Rim, 34 inches.
Width of Rim, 4½ inches.
Depth Inside, 17 inches.
Height to Top of Rim, 17½ inches.

Nominal Sizes.....feet	5	5½
Length over Rim.....inches	62½	68½
Price, as described	194.10	204.50
" Tub only	149.30	159.70

NOTE.—Can be furnished with Outlet at Left-Hand End and Supply and Waste Fitting through Rear Wall at Center or near either End.

ENAMELED IRON BATHS

GUARANTEED

Plate E891

Enameled Iron Flat Bottom Bath for Left-Hand Corner with 4½-inch Rim, Enameled Iron Integral Apron, to tile 1½ inches into Walls and ½ inch into Floor, Nickel-plated Combination Concealed Low Bell Supply, Waste and Shower, ¾-inch Supply Connections, Anti-Scalding Mixer, Switch Valve and Waste with China Handles, Curtain Rail and Duck Curtain.

DIMENSIONS

Width over Rim, 34 inches.
Width of Rim, 4½ inches.
Depth Inside, 17 inches.
Height to Top of Rim, 17½ inches.

Nominal Sizes ..... feet	5	5½
Length over Rim ..... inches	62½	68½
Price, as described	283.50	293.90
" Tub only	149.30	159.70

ENAMELED IRON BATHS

GUARANTEED

Plate E901

Enameled Iron Flat Bottom Recess Bath with 4½-inch Rim, Enameled Iron Integral Apron, to tile 1½ inches into Walls and ½ inch into Floor, Nickel-plated Top Nozzle Supply and Waste Fitting with Concealed Fuller Valves, Half-Union Supply Connections for ¾-inch Iron Pipe, China Indexed Handles and China Handle on Waste, Rubber Hose and Shampoo Spray.

DIMENSIONS

Width over Rim, 34 inches.
Width of Rim, 4½ inches.
Depth Inside, 17 inches.
Floor to Top of Rim, 17½ inches.

Nominal Sizes ..... feet	5	5½
Length over Rim ..... inches	62½	68½
Price, as described	183.80	192.60
" Tub only	134.50	143.30

NOTE.—Can be furnished with Outlet at Right-Hand End and Supply and Waste Fitting through Rear Wall at Center or near either Corner or through Wall on Right-Hand End.

ENAMELED IRON BATHS

GUARANTEED

Plate E911

Enameled Iron Bath with 3½-inch Flat Rim and Left-hand End Outlet, Enameled Iron Front and End Casings on Three Sides, designed to tile in at Back Wall, Nickel-plated Compression Top Supply and Waste Fitting with China Cross Handles, China Indexes, China Knob on Waste, ¾-inch Supply Pipes, Rubber Hose and Sprinkler.

DIMENSIONS

Width over Rim, 30½ inches. Width from Finished Wall Line, 29 inches.
Width of Rim, 3½ inches. Depth Inside, 17 inches.
Height to Top of Rim, 21½ inches.

Nominal Sizes ..... feet	4½	5	5½	6
Length over Rim ..... inches	56¾	63¼	68¼	75
Price, as described	**92.00**	**95.50**	**100.00**	**109.00**
" Tub only	**60.00**	**63.50**	**68.00**	**77.00**

This Tub may also be furnished with various styles of Supply and Waste Fittings, Compression or Fuller.

Adapto Baths may also be furnished in low Pattern which are 4 inches lower.

ENAMELED IRON BATHS

GUARANTEED

Plate E921

Enameled Iron Bath with Right-hand End Outlet, Slope End and 3½-inch Flat Rim, to tile in Right-hand Corner, Enameled Iron Front and End Casing, Nickel-plated Compression Top Nozzle Supply and Waste Fitting with ¾-inch Concealed Valves and Handles through End Wall with China Cross Handles and China Indexes.

DIMENSIONS

Width over Rim, 30½ inches.
Width of Rim, 3½ inches.
Height, Floor to Top of Rim, 21½ inches.
Width from Finished Wall Line, 29 inches.
Depth Inside, 17 inches.
Height, Bottom of Bath to Top of Rim, 22 in.

Nominal Sizes.....feet	4½	5	5½	6
Length over Rim.....inches	56¾	63¼	68¼	75
" from Finished Wall Line..... "	55¼	61¾	66¾	73½
Price, as described.....	**86.00**	**88.00**	**92.50**	**101.50**
" Tub only.....	**56.00**	**58.00**	**62.50**	**71.50**

If with ½-inch Supply Valves, deduct..... **6.00**

Also furnished to tile in left-hand corner, at same price.

This tub is also made in low pattern, the height from bottom of bath to top of rim being 18 inches and from floor to top of rim, 17½ inches.

ENAMELED IRON BATHS

GUARANTEED

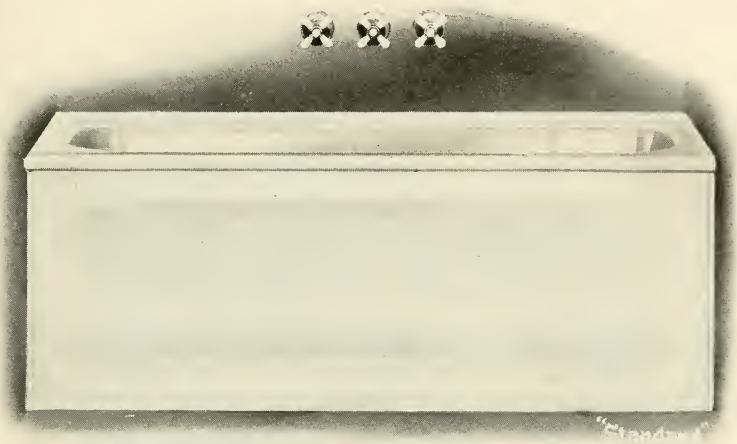


Plate E931

Enameled Iron Recess Bath with Right-hand End Outlet, Slope End and 3½-inch Flat Rim, Enameled Iron Front Casing, Nickel-plated Compression Top Nozzle Supply and Waste Fitting with ¾-inch Concealed Valves and Handles through Back Wall with China Cross Handles and China Indexes.

DIMENSIONS

Width over Rim, 30½ inches.
Width of Rim, 3½ inches.
Height, Floor to Top of Rim, 21½ inches.
Width from Finished Wall Line, 29 inches.
Depth Inside, 17 inches.
Height, Bottom of Bath to Top of Rim, 22 in.

Nominal Sizes.....feet	4½	5	5½	6
Length over Rim.....inches	56¾	63¼	68¼	75
" from Finished Wall Line..... "	53¾	60¼	65¼	72
Price, as described.....	**80.50**	**82.75**	**87.00**	**96.00**
" Tub only.....	**50.50**	**52.75**	**57.00**	**66.00**

If with ½-inch Supply Valves, deduct..... **6.00**

May also be furnished with supply and waste fittings concealed at end or with fittings exposed at front of tub. This tub is also made in low pattern.

ENAMELED IRON BATHS

GUARANTEED

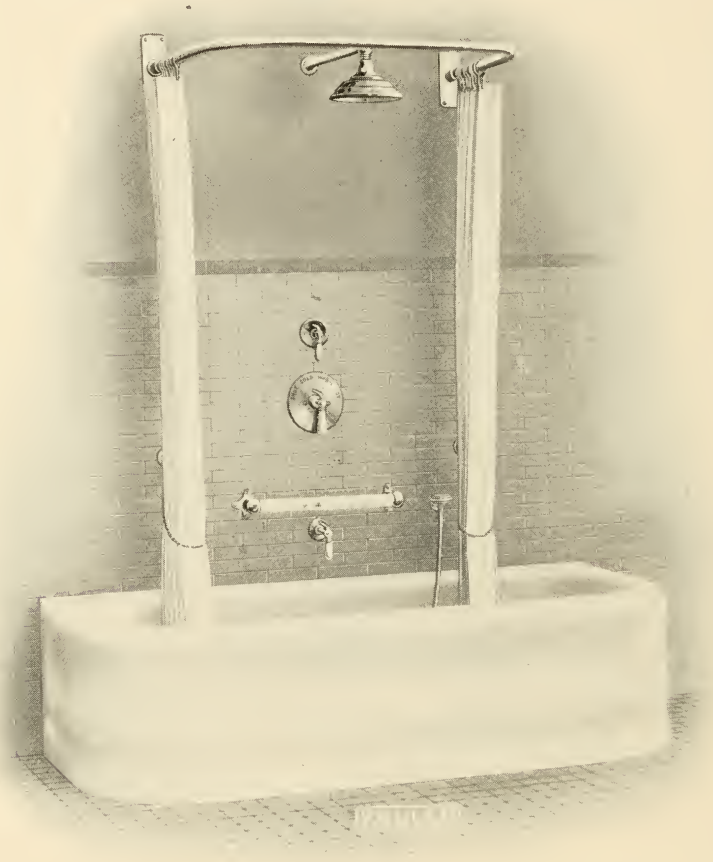


Plate E941

Enameled In and Out Iron Flat Bottom One-piece Bath to Tile into Wall and into Floor, 3½-inch Roll Rim, Nickel-plated Brass Combination Top Nozzle Supply and Waste Fitting with Concealed Valves, Anti-scalding Mixer, China Handles, Shower Head, Curtain Rail and Duck Curtain, Rubber Hose with Shampoo Spray.

DIMENSIONS

Width Over Rim, 30 inches. Depth Inside, 17 inches.
Width of Rim, 3½ inches Floor to Top of Rim, 17½ inches.

Nominal Sizes.....feet	4½	5	5½	6
Length Over Rim.....inches	55	61	67	73
Price, as described.....	**211.50**	**213.50**	**218.50**	**228.50**
" Tub only.....	**75.00**	**77.00**	**82.00**	**92.00**

If without Rubber Hose and Shampoo Spray, deduct..... **2.00**

ENAMELED IRON BATHS

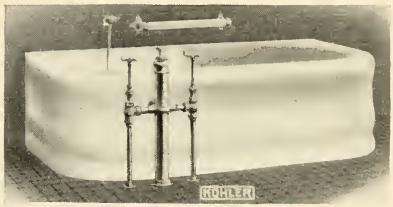
WALL PATTERN

No. V-10-A

No. V-11-GA

No. V-10-DA

No. V-11-HA



No. V-10-EA

No. V-11-IA

No. V-10-FA

Outlet in tub at right-hand end.

No. V-11-FA

Outlet in tub at left-hand end.

Top nozzle supply and waste fixture with compression valves, indexed china handles, and shampoo as illustrated are regularly furnished.

Can also furnish with Fuller valves and low bell.

Sizes.....feet	4½	5	5½	6

ENAMELED IRON BATHS

GUARANTEED

Plate E961

Enameled In and Out Iron Flat Bottom One-piece Bath to tile in Right-hand Corner and into Floor, 3½-inch Roll Rim, Nickel-plated Brass Combination Top Nozzle, Waste and Shower with Concealed Valves, Anti-scalding Mixer, China Handles, Ball Joint Shower Head, Curtain Rail and Duck Curtain, Rubber Hose with Shampoo Spray.

DIMENSIONS

Width over Rim, 30 inches. Depth Inside, 17 inches.
Width of Rim, 3½ inches. Floor to Top of Rim, 17½ inches.

Nominal Sizes.....feet	4½	5	5½	6
Length Over Rim.....inches	54	60	66	72
Price, as described.....	**200.00**	**203.00**	**208.00**	**218.00**
" Tub only.....	**63.00**	**66.00**	**71.00**	**81.00**

If without Rubber Hose and Shampoo Spray, deduct..... **2.00**

ENAMELED IRON BATHS

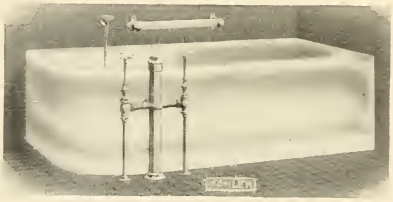
RIGHT-HAND CORNER PATTERN

No. V-12-A

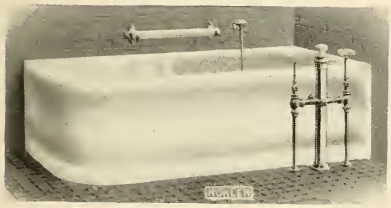
No. V-13-GA

No. V-12-DA

No. V-13-HA



No. V-12-EA



No. V-13-IA

No. V-12-FA

Outlet in tub at right-hand end.

No. V-13-FA

Outlet in tub at left-hand end.

Top nozzle supply and waste fixture with compression valves indexed china handles, and shampoo as illustrated are regularly furnished.

Can also furnish with Fuller valves and low bell.

Sizes.....feet	4½	5	5½	6

ENAMELED IRON BATHS

GUARANTEED

Plate E981

Enameled In and Out Iron Flat Bottom One-piece Bath to tile in Left-hand Corner and into Floor, 3½-inch Roll Rim, Nickel-plated Brass Combination Top Nozzle Supply and Waste Fitting with Concealed Compression Valves, China Indexed Cross Handles, Ball Joint Shower Head, Curtain Rail and Duck Curtain, Rubber Hose with Shampoo Spray.

DIMENSIONS

Width over Rim, 30 inches. Depth Inside, 17 inches.
Width of Rim, 3½ inches. Floor to Top of Rim, 17½ inches.

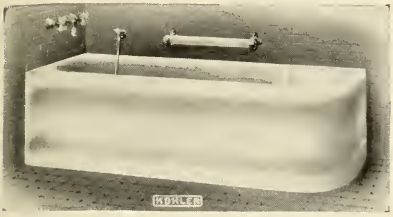
Nominal Sizes ....feet	4½	5	5½	6
Length over Rim ....inches	54	60	66	72
Price, as described....	**159.30**	**162.30**	**167.30**	**177.30**
" Tub only....	**63.00**	**66.00**	**71.00**	**81.00**

If without Rubber Hose and Shampoo Spray, deduct.... **2.00**

ENAMELED IRON BATHS

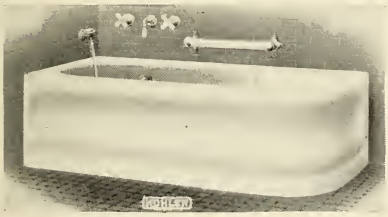
LEFT-HAND CORNER PATTERN

No. V-14-A

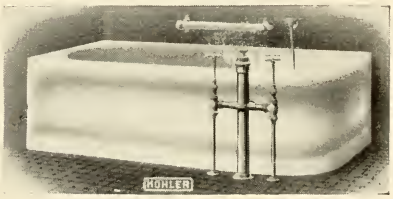


No. V-15-GA

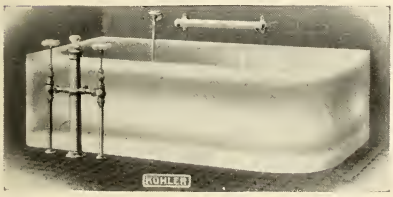
No. V-14-DA



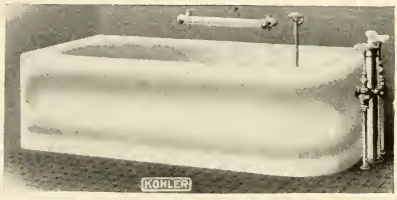
No. V-15-HA



No. V-14-EA



No. V-15-IA



No. V-14-FA
Outlet in tub at left-hand end.

No. V-15-FA
Outlet in tub at right-hand end.

Top nozzle supply and waste fixture with compression valves, indexed china handles, and shampoo as illustrated are regularly furnished.

Can also furnish with Fuller valves and low bell.

Size.....feet	4½	5	5½	6

ENAMELED IRON BATHS

GUARANTEED

Plate E1001

Enameled In and Out Iron Flat Bottom One-piece Recess Bath to Tile into Wall and into Floor, 3½-inch Roll Rim, Nickel-plated Brass Combination Top Nozzle Supply and Waste Fitting with Concealed Fuller Valves, Anti-scalding Mixer, China Handles, Ball Joint Shower Head, Curtain Rail and Duck Curtain, Rubber Hose with Shampoo Spray.

DIMENSIONS

Width Over Rim, 30 inches. Depth Inside, 17 inches.
Width of Rim, 3½ inches. Floor to Top of Rim, 17½ inches.

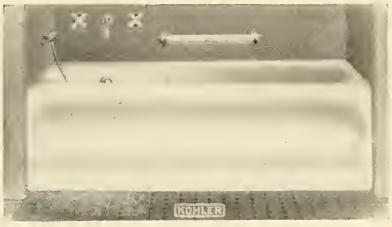
Nominal Sizes.....feet	4½	5	5½	6
Length over Rim.....inches	54	60	66	72
Price, as described.....	**162.50**	**165.50**	**170.50**	**180.50**
" Tub only.....	**57.00**	**60.00**	**65.00**	**75.00**
If without Rubber Hose and Shampoo Spray, deduct.....				**2.00**

ENAMELED IRON BATHS

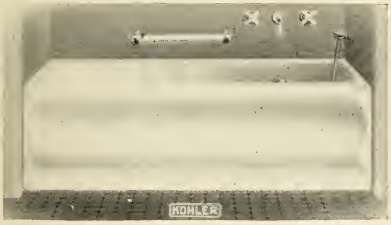
RECESS PATTERN

No. V-16-A

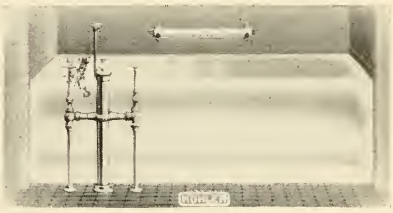
No. V-17-GA



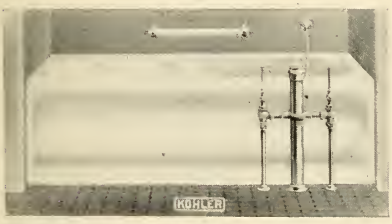
No. V-16-DA



No. V-17-HA

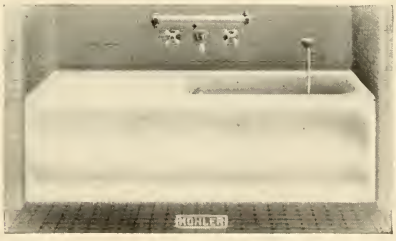


No. V-16-EA



No. V-17-IA

No. V-16-FA
Outlet in tub at right-hand end.



No. V-17-FA
Outlet in tub at left-hand end.

Top nozzle supply and waste fixture with compression valves, indexed china handles and shampoo as illustrated are regularly furnished.

Can also furnish with Fuller valves and low bell.

Sizes .....feet	4½	5	5½	6

ENAMELED IRON BATHS

GUARANTEED

Plate E1021

Enameled Inside Iron Flat Bottom One-piece Bath to tile into Wall at Back and into Floor, with 3-inch Roll Rim, Painted One Coat Exterior, Concealed Bell Supply and Waste Fitting with Concealed Compression Valves with China Cross Handles and China Lever Waste Handle. Waste Outlet at Left-hand End. To tile ½ inch into Wall and Floor.

DIMENSIONS

Width over Rim, 29 inches.
Width of Rim, 3 inches.
Depth Inside, 17 inches.
Floor to Top of Rim, 17½ inches.

Nominal Sizes	feet	5
Length Over Rim	inches	61½
Price, as described		**91.00**
" Tub only		**47.00**

ENAMELED IRON BATHS

GUARANTEED

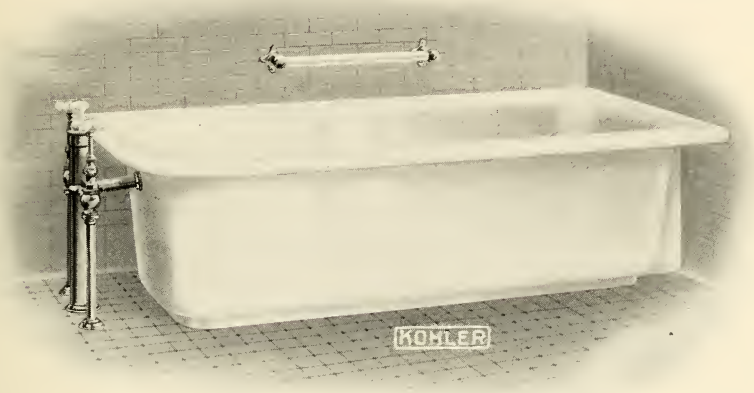


Plate E1031

Enameled Inside Iron Flat Bottom One Piece Bath to tile into Walls at Back and Right-Hand End and into Floor, with 3-inch Roll Rim, Painted One Coat Exterior, Compression Top Nozzle Supply and Waste Fitting with Indexed China Handles, Waste Outlet at Left-Hand End. To tile ½-inch into Walls and Floor.

DIMENSIONS

Width Over Rim, 29 inches
Width of Rim, 3 inches
Depth Inside, 17 inches
Floor to Top of Rim, 17½ inches

Nominal Sizes.....feet	4½	5	5½
Length over Rim.....inches	54½	60½	66½
Price, as described.....	**90.00**	**92.00**	**97.60**
" Tub only.....	**39.50**	**41.50**	**47.00**

If with Fuller Top Nozzle Supply and Waste Fitting with Indexed China Handles, add..... **6.00**

NOTE.—Can be furnished with waste outlet at either end, exposed or concealed supply and waste fixture at center, side or end of tub. Fixture can be furnished with Fuller valves and low bell.

ENAMELED IRON BATHS

GUARANTEED

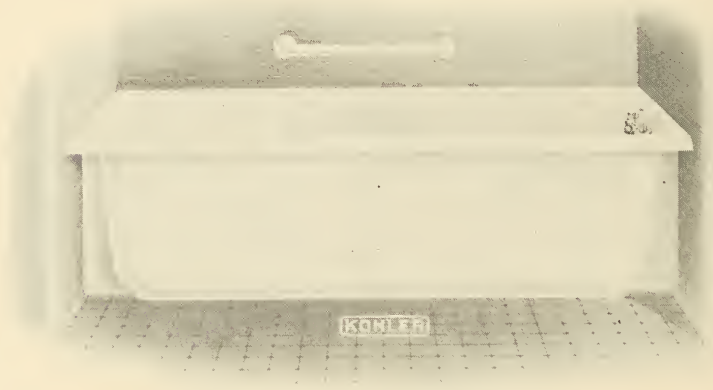


Plate E1041

Enameled Inside Flat Bottom One Piece Recess Bath to tile into Walls at Back and Both Ends, and into Floor, with 3-inch Roll Rim, painted One Coat Exterior, fitted with No. 3 Nickel-plated Compression Double Bath Cock with ½-inch Iron Pipe Female Connections and China Cross Handles, 1½-inch Concealed Connected Waste and Overflow with Chain and Rubber Stopper. Waste Outlet at Right-hand End. To tile ½-inch into Walls and Floor.

DIMENSIONS

Width over Rim, 29 inches.
Width of Rim, 3 inches.
Depth Inside, 17 inches.
Floor to Top of Rim, 17½ inches.

Nominal Sizes.....feet	4½	5	5½
Length Over Rim.....inches	53½	59½	65½
Price, as described	**55.30**	**57.30**	**62.80**
" Tub only.....	**39.50**	**41.50**	**47.00**

ENAMELED IRON BATHS

ARGYLE

GUARANTEED

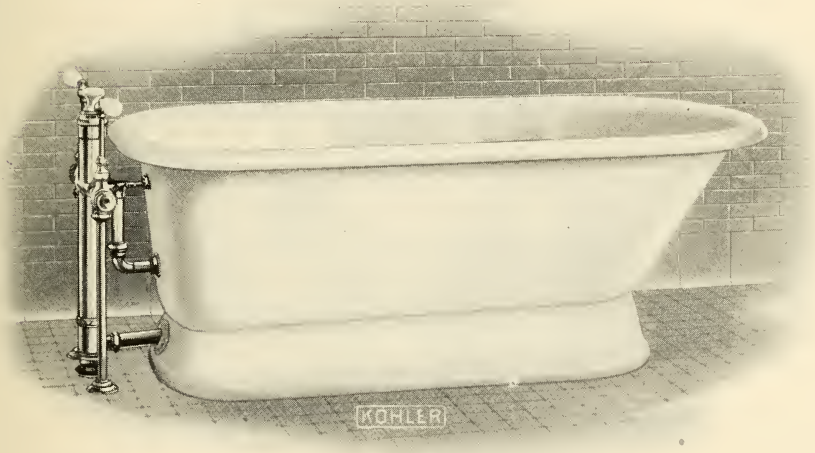


Plate E1051

Enameled Iron Flat Bottom Bath on Base with 3-inch Roll Rim, Painted One Coat Exterior, Nickel-plated Low Bell Supply and Waste Fitting with Fuller Valves, ½-inch Supply Pipes, China Indexed Handles and China Indexed Knob on Waste.

DIMENSIONS

Width over Rim, 30 inches.
Width of Rim, 3 inches.
Depth Inside, 17 inches.
Floor to Top of Rim, 21½ inches.

Nominal Sizes.....feet	4	4½	5	5½	6
Length over Rim.....inches	48	54	60	66	72¼
Price, as described.....	87.50	87.50	87.50	93.50	103.50
" Tub only.....	38.00	38.00	38.00	44.00	54.00
If with Enameled Base, add.....	5.60	5.60	6.30	6.90	7.50

If with No. 1 Zinc Exterior Finish, add..... 16.00
" " " 2 " " " " 12.00
" " Gold Leaf Bands or Lines, add 3.50

ENAMELED IRON BATHS

ARGYLE

GUARANTEED

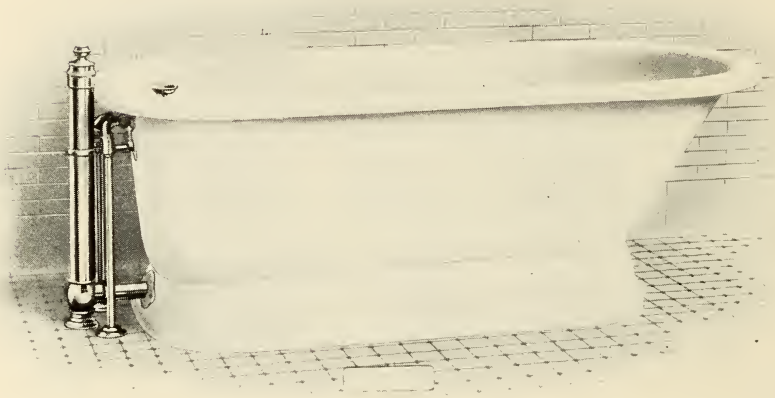


Plate E1061

Enameled Iron Flat Bottom Bath on Base with 3-inch Roll Rim, Painted One Coat Exterior, No. 4½ Nickel-plated Fuller Double Bath Cock, ½-inch Nickel-plated Supply Pipes and Nickel-plated Ideal Waste and Overflow with China Indexed Knob.

DIMENSIONS

Width over Rim, 30 inches.
Width of Roll Rim, 3 inches.
Depth Inside, 17 inches.
Floor to Top of Rim, 22½ inches.

Nominal Sizes.....feet	4	4½	5	5½	6
Length over Rim.....inches	48	54	60	66	72¼
Price, as described.....	64.00	64.00	64.00	70.00	80.00
" Bath only.....	38.00	38.00	38.00	44.00	54.00
If with Enameled Base, add.....	5.60	5.60	6.30	6.90	7.50

If with No. 1 Zinc White Exterior Finish, add..... 16.00
" " " 2 " " " " " 12.00
" " Gold Leaf Bands or Lines, add..... 3.50

ENAMELED IRON BATHS

ARGYLE

GUARANTEED

Plate E1071

Enameled Iron Flat Bottom Bath on Base with 3-inch Roll Rim, Painted One Coat Exterior, Nickel-plated Fuller Double Bath Cock, ½-inch Nickel-plated Offset Supply Pipes, Nickel-plated Connected Waste and Overflow with Rubber Stopper.

DIMENSIONS

Width Over Rim, 30 inches. Depth Inside, 17 inches.
Width of Rim, 3 inches. Floor to Top of Rim, 22½ inches.

Nominal Sizes.....feet	4	4½	5	5½	6
Length over Rim.....inches	48	54	60	66	72¼
Price, as described.....	53.60	53.60	53.60	59.60	69.60
" Tub only.....	38.00	38.00	38.00	44.00	54.00
If with Enameled Base, add.....	5.60	5.60	6.30	6.90	7.50

If with No. 1 Zinc Exterior Finish, add..... 16.00
" " " 2 " " " " 12.00
" " Gold Leaf Bands or Lines, add..... ..... 3.50

ENAMELED IRON BATHS

IVANHOE

GUARANTEED

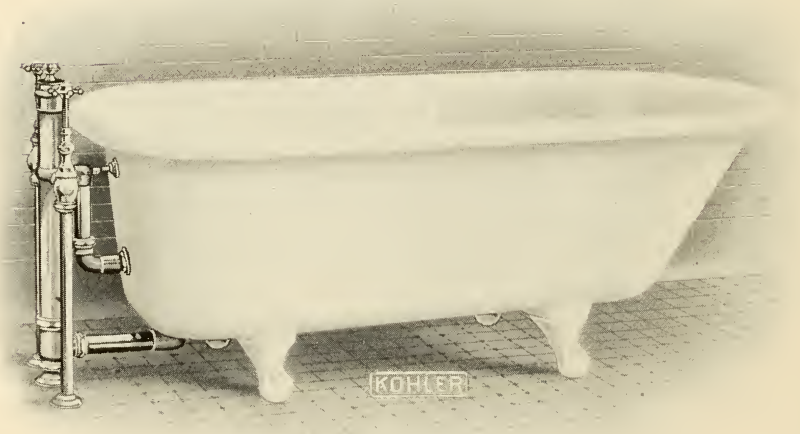


Plate E1081

Enameled Iron Flat Bottom Bath with 3-inch Roll Rim and Claw Feet, Painted One Coat Exterior, Nickel-plated Compression Bottom Bell Supply and Waste Fitting with China Indexes and ½-inch Nickel-plated Supply Pipes.

DIMENSIONS

Width over Rim, 30 inches.
Width of Roll Rim, 3 inches.
Depth Inside, 17 inches.
Floor to Top of Rim, 22½ inches.

Nominal Sizes.....feet	4	4½	5	5½	6
Length over Rim.....inches	48	54	60	66	72¼
Price, as described.....	**75.00**	**75.00**	**75.00**	**80.00**	**90.00**
" Tub only.....	**31.00**	**31.00**	**31.00**	**36.00**	**46.00**

If with No. 1 Zinc White Finish Outside, add..... **16.00**
" " " 2 " " " " " **12.00**
" " Gold Bands or Gold Lines, add..... **3.50**

ENAMELED IRON BATHS

IVANHOE

GUARANTEED

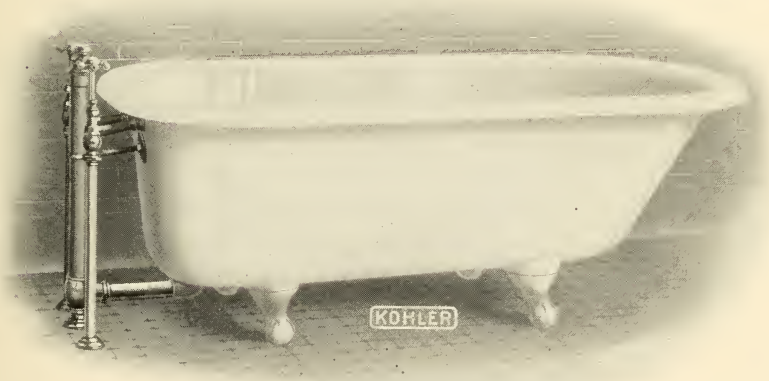


Plate E1091

Enameled Iron Flat Bottom Bath with 3-inch Roll Rim and Claw Feet, Painted One Coat Exterior, with Nickel-plated Double Bell Top Nozzle Supply and Waste Fitting, Compression Valves with Six-ball Handles with China Indexes, ½-inch Supply Pipes and China Indexed Knob on Waste.

DIMENSIONS

Width over Rim, 30 inches.
Width of Roll Rim, 3 inches.
Depth Inside, 17 inches.
Height to Top of Rim, 22½ inches.

Nominal Sizes .....feet	4	4½	5	5½	6
Length over Rim .....inches	48	54	60	66	72¼
Prices, as described.....	74.50	74.50	74.50	79.50	89.50
" Tub Only.....	31.00	31.00	31.00	36.00	46.00

If with No. 1 Zinc White Exterior Finish, add..... 16.00
" " " 2 " " " " " " 12.00
" " Gold Leaf Bands or Lines, add 3.50

ENAMELED IRON BATHS

IVANHOE

GUARANTEED

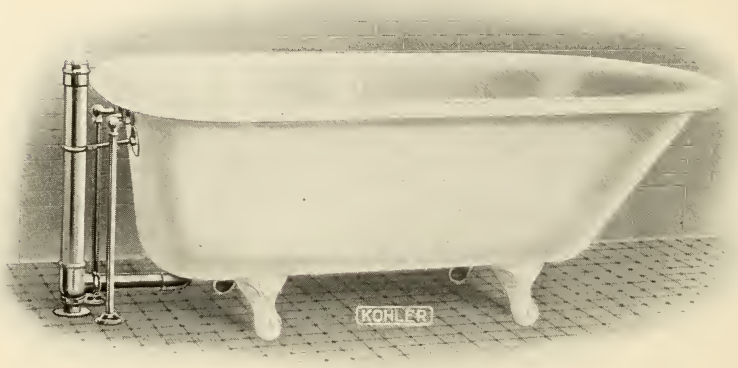


Plate E1101

Enameled Iron, Flat Bottom Bath with 3-inch Roll Rim, Painted One Coat Exterior, No. 4½ Nickel-plated Fuller Double Bath Cock, ½-inch Offset Supply Pipes and Standing Overflow and Waste with China Indexed Knob.

DIMENSIONS

Width over Rim, 30 inches.
Width of Roll Rim, 3 inches.
Depth, Inside, 17 inches.
Floor to Top of Rim, 22½ inches.

Nominal Sizes.....feet	4	4½	5	5½	6
Length over Rim.....inches	48	54	60	66	72¼
Price, as described.....	**58.70**	**58.70**	**58.70**	**63.70**	**73.70**
" Tub only.....	**31.00**	**31.00**	**31.00**	**36.00**	**46.00**

If with No. 1 Zinc White Exterior Finish, add..... **16.00**
" " " 2 " " " " " **12.00**
" " Gold Leaf Bands or Lines, add..... **3.50**

ENAMELED IRON BATHS

IVANHOE

GUARANTEED

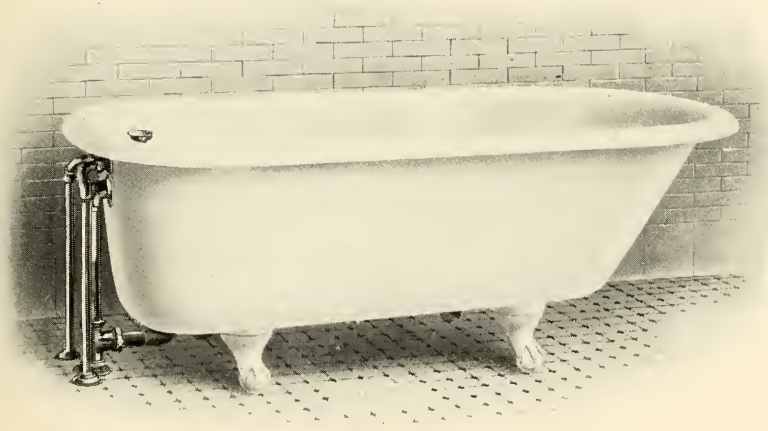


Plate E1111

Enameled Iron Flat Bottom Bath with 3-inch Roll Rim and Claw Feet, Painted One Coat Exterior, with No. 4½ Nickel-plated Fuller Double Bath Cock with ½-inch Offset Supply Pipes and Nickel-plated Connected Waste and Overflow.

DIMENSIONS

Width over Rim, 30 inches.
Width of Roll Rim, 3 inches.
Depth Inside, 17 inches.
Floor to Top of Rim, 22½ inches.

Nominal Sizes .....feet	4	4½	5	5½	6
Length over Rim .....inches	48	54	60	66	72¼
Price, as described	47.60	47.60	47.60	51.60	61.00
" Tub only	31.00	31.00	31.00	36.00	46.60

If with No. 1 Zinc White Finish, add	16.00
" " " 2 " " " "	12.00
" " Gold Bands or Lines, add	3.50

ENAMELED IRON BATHS

CLYDE

GUARANTEED

Plate E1121

Enameled Iron Flat Bottom Bath with 2-inch Roll Rim and Claw Feet, Painted One Coat Exterior, Nickel-plated, with No. 4½ Fuller Double Bath Cock with ½-inch Offset Supply Pipes and Nickel-plated Connected Waste and Overflow.

DIMENSIONS

Width over Rim, 26 inches.
Width of Roll Rim, 2 inches.
Depth Inside, 17⅝ inches.
Height to Top of Rim, 22 inches.

Nominal Sizes.....feet	4	4½	5	5½
Length over Rim.....inches	48¼	54¼	60½	63¾
Price, as described.....	43.25	43.25	43.25	47.60
" Tub only.....	27.75	27.75	27.75	32.00

If with No. 1 Zinc White Finish, add..... 16.00
" " " 2 " " " " 12.00

ENAMELED IRON BATHS

ROB ROY

GUARANTEED

Plate E1131

Enameled Iron Flat Bottom Bath with 1½-inch Roll Rim and Claw Feet, Painted One Coat Exterior, No. 4½ Nickel-plated Fuller Double Bath Cock with ½-inch Offset Supply Pipes and Nickel-plated Connected Waste and Overflow, with Rubber Stopper.

DIMENSIONS

Width over Rim, 24¾ inches.
Width of Roll Rim, 1½ inches.
Depth Inside, 17⅝ inches.
Floor to Top of Rim, 22½ inches.

Nominal Sizes ..... feet	4	4½	5	5½	6
Length over Rim ..... inches	49½	54¾	61	66	72
Price, as described	27.75	27.75	27.75	32.00	42.00
" Tub only	43.35	43.35	43.35	47.60	57.60

If with No. 1 Zinc White Finish, add 16.00
" " " 2 " " " " 12.00

SOLID PORCELAIN SITZ AND FOOT BATHS

SITZ BATH

Plate E1141

FOOT BATH

Plate E1142

SITZ BATHS

Solid Porcelain Sitz Bath on Base, Glazed Inside and Outside, fitted with Compression Combination Bell Supply and Waste Fitting with China Indexed Handles and China Waste Knob.

Length Outside, 30 inches. Height at Back, 21 inches.
Width Outside, 27 inches. Height at Front, 15 inches.

	Class A	Class B
Price, as described	92.20	71.20
" Tub only	70.00	49.00

This tub may also be furnished to tile into Wall at Back at same price.

FOOT BATHS

Solid Porcelain Foot Bath on Base, Glazed Inside and Outside, fitted with Nickel-plated Compression Combination Bell Supply and Waste Fitting with China Indexed Handles and China Waste Knob.

Length Outside, 25 inches. Width Outside, 21 inches.
Height to Top of Rim, 13 inches.

	Class A	Class B
Price, as described	53.05	44.05
" Tub only	30.00	21.00

ENAMELED IRON SITZ AND FOOT BATHS

SITZ BATH

Plate E1151

FOOT BATH

Plate E1152

SITZ BATHS

Enameled Iron Roll Rim Sitz Bath on Base, Painted One Coat Exterior, fitted with Nickel-plated Compression Combination Supply and Waste Fitting with China Indexed Handles and China Indexed Waste Knob.

Width over Rim, 30¼ inches.
Width of Rim, 3 inches.
Depth Inside, 10½ inches.
Front to Back over Rim, 32½ inches.
Height at Front, 15 inches.
Height at Back, 23½ inches.

Price, as described	92.50
" Tub only	61.00
If with No. 1 Zinc White Exterior Finish, add	10.00
" " " 2 " " " " " "	6.50

FOOT BATHS

Enameled Iron Roll Rim Foot Bath on Base, Painted One Coat Exterior, fitted with Nickel-plated Compression Combination Supply and Waste Fitting with China Indexed Handles and China Indexed Waste Knob.

Length over Rim, 24¼ inches.
Width over Rim, 21¼ inches.
Depth Inside, 11½ inches.
Height to Top of Rim, 15¾ inches.
Width of Rim, 2¼ inches.

Price, as described	62.50
" Tub only	31.00
If with No. 1 Zinc White Exterior Finish, add	7.00
" " " 2 " " " " " "	5.50

SHOWER RECEPTORS

PORCELAIN

SQUARE

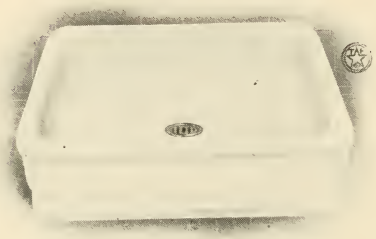


Plate E1161

RECESS

Plate E1162

SQUARE

Porcelain Square Receptor to tile into Floor with Nickel-plated Strainer and Coupling.

Size Outside 36x36x9 inches Depth Inside 7½ inches
Size Outside 42x42x9 inches Depth Inside 7½ inches

Size ..... inches	36x36	42x42
Price, as described, Class A	57.35	102.35
" " " " B	47.35	72.35
" Receptor Only	55.00	100.00
" " "	45.00	70.00

RECESS

Porcelain Square Recess Receptor to tile into Floor and Walls, with Nickel-plated Strainer.

Size Outside 36x36x9 inches Depth Inside 7½ inches
Size Outside 42x42x9 inches Depth Inside 7½ inches

Size ..... inches	36x36	42x42
Price, as described, Class A	58.00	103.00
" " " " B	48.00	73.00

Plate E1163

ENAMELED IRON ON BASE

Enameled Iron Shower Receptor on Base, with Center Outlet, Nickel-plated Brass Strainer and 2¼-inch Tail-piece.

Size Over Rim 36x36 inches Depth Inside 6⅜ inches
Size Over Rim 42x42 inches Depth Inside 8 inches

Height 9¾ inches
Height 11½ inches

Size .. ..inches	36x36	42x42
Price, as described	55.00	73.00

SHOWER AND NEEDLE BATHS

WITH NIEDECKEN ANTI-SCALDING MIXING AND CONTROLLING VALVE

(Patented)

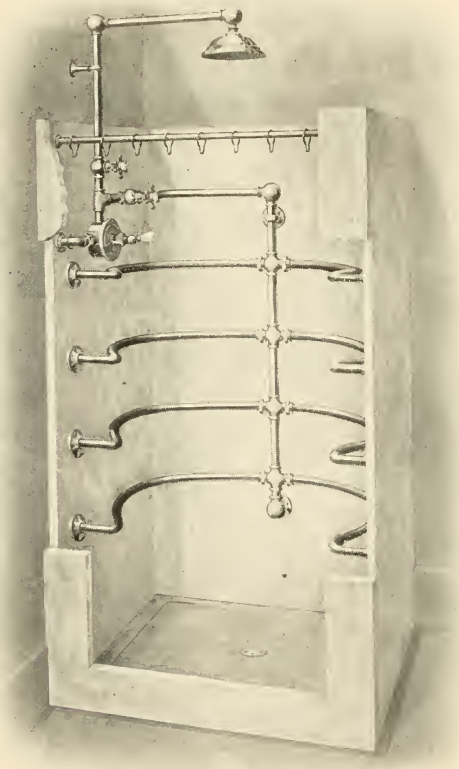


Plate E1171

Nickel-plated Brass Shower and Needle Bath with 8-inch Perforated Shower Head, Niedecken Anti-Scalding Valve with ¾-inch Supplies to Wall, Iron Pipe Size Needle Spray Pipes with Union Couplings, Compression Valves with China Indexes and Curtain Rail with Hooks.

Price, as described	165.00
" Extra for White Duck Curtain	4.00
If without Curtain Rail and Hooks, deduct	5.00

Marble stall, floor slab and strainer extra. Add for Shampoo, 5.00.

As will be seen, the mixing and controlling valve is placed at the side so that the temperature can be regulated before getting into the bath, which is a very desirable feature.

SHOWER AND NEEDLE BATHS

WITH NIEDECKEN ANTI-SCALDING MIXING AND CONTROL VALVE

Plate E1181

Nickel-plated Brass Combination Shower and Needle Bath with Niedecken Mixer, Shower Head with Adjustable Ball Joint, Compression Valves with China Six-Ball Handles and China Indexes and ¾-inch Supplies to Wall.

Price, as described 75.00

If with Shampoo Attachment, add..... 5.00
" " Curtain Rail and Hooks, add..... 5.00
" " Duck Curtain, add. 4.00

Marble Stall and Floor Strainer Extra.

COMBINATION SHOWER AND BATH FILLERS

WITH NIEDECKEN ANTI-SCALDING MIXING AND CONTROLLING VALVE

(Patented)

Plate E1191

Nickel-plated Combination Shower and Bath Filler, Adjustable Ball Joint Shower Head with Removable Face and Supply Arm to Wall, Niedecken Anti-Scalding Control Valves with China Handles, Nickel-plated Dial Plates and China Handle for Waste.

Price, as described 70.00

Add for Straight Rail and Hooks for Recess Tub 7.00
" " Bent " " " " Corner " 15.00
" " Duck Curtain 6.00

SHOWER BATHS

WITH NIEDECKEN ANTI-SCALDING, MIXING AND CONTROLLING VALVE

Plate E1201

Nickel-plated Shower Bath with Niedecken Anti-Scalding and Mixing Valve, with China Handle and Supply Pipes to Wall, Nickel-plated Needle Shower Head, 24x42-inch Nickel-plated Curtain Ring with Support and White Duck Curtain.

Price, as described, with Supplies to Wall	52.00
" " " " " " Floor	59.00
" " " with Concealed Mixer with China Dial	52.00

This shower may be furnished with concealed type mixing valve at same price as shower with supplies to wall. This concealed type makes a very neat installation and the mixer is easily accessible through the dial plate, which can be readily removed.

SHOWERS

HOTEL TYPE SHOWER WITH NIEDECKEN MIXER

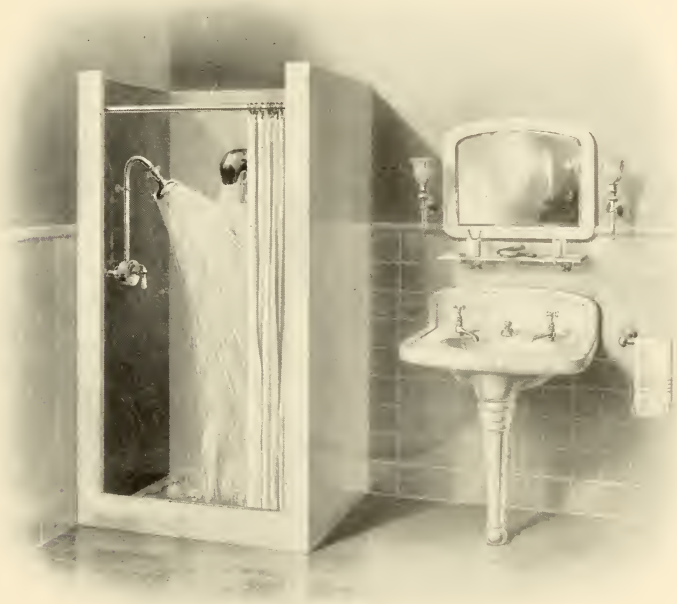


Plate E1211

SUGGESTIONS

Showers should always be installed as indicated in illustration, namely, on the side and near the front of the shower stall, enabling the bather to do all of the adjusting before actually getting into the bath.

For hotels and residences it is recommended that the shower head be placed 5 feet 6 inches above the floor, making it possible to take a bath without wetting the head.

Particular attention is called to the water supply; the same must be of ample size to take care of the showers and any other fixtures that it is supposed to feed.

SHOWER BATHS

WITH NIEDECKEN ANTI-SCALDING MIXING AND CONTROL VALVE

Plate E1221

Nickel-plated Combination Shower with Niedecken Mixer, Supply Pipes to Wall, 30-inch Curtain Ring and Duck Curtain.

Price, as described 52.00

If with Supply Pipes from Floor, add 7.00
Add for Shampoo 5.00

SHOWER BATHS

WITH NIEDECKEN ANTI-SCALDING MIXING AND CONTROLLING VALVE

Patented

SUPPLIES TO WALL

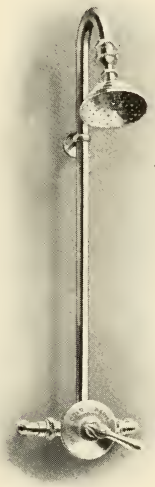


Plate E1231

SUPPLIES TO CEILING

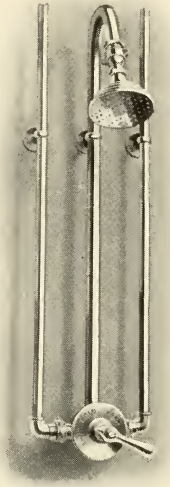


Plate E1232

The Niedecken Anti-scalding Valve is of the compression type, free from springs. The valve seats are renewable and the operating screw is extra large and is guided at both ends. The face of the valve is removable, making it easy to repack the valve. The anti-scalding feature is especially important, and consists of a device by means of which the valve can be set for a predetermined temperature. In order to adjust the valve, the small cap screw immediately below the handle is removed, which exposes the stop or regulating screw. By moving the screw either in or out, the travel of the valve is either reduced or increased, which determines the amount of hot water allowed to pass through the valve. On opening the valve, cold water is first obtained and the temperature is increased by the travel of the handle. These valves are regularly furnished for pressures from 25 to 60 pounds, but can also be furnished for higher pressures to suit the conditions.

Nickel-plated brass shower baths with 5-inch shower head with removable face and adjustable ball joint, Niedecken Anti-scalding Valve and iron pipe size supply pipes.

Price, ½-inch, with Supplies to Wall	each	**34.00**
" ½ " " " " Floor or Ceiling	"	**41.00**
" ¾ " " " " Wall	"	**45.00**
" ¾ " " " " Floor or Ceiling	"	**54.00**
" ½ " Mixer only	"	**20.00**
" ¾ " " "	"	**28.00**

SHOWER BATHS

WITH NIEDECKEN ANTI-SCALDING MIXING AND CONTROLLING VALVE

(Patented)

CONCEALED TYPE

Plate E1241

Nickel-plated Brass Shower Head with Removable Face and Adjustable Ball Joint, Supply Arm to Wall, Niedecken Anti-scalding Control Valve, Concealed Type with China Handle.

Price, as described, with ½-inch Mixer..... **27.00**
" " " " ¾ " " **36.00**

The peculiar construction of this valve permits the practical concealing of the body of the shower and at the same time permits repacking, by simply removing the face plate.

NIEDECKEN MIXERS

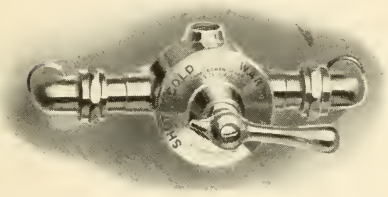


Plate E1251

The Niedecken Mixer is a distinctly new type of shower control. It is thoroughly efficient, immediate in action, and gives perfect control under all conditions. The basic principle of the Niedecken Mixer is that of compression work.

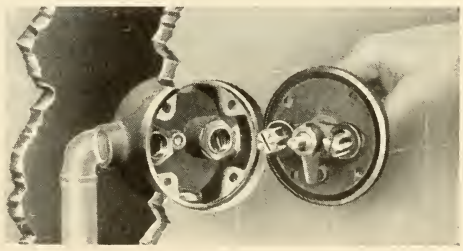
In construction, the aim of the manufacturer has been to design a valve that would be durable, and this has been accomplished. All the working parts of the Niedecken Mixer, even to the valve seats, can be readily replaced should it become necessary, after years of use. In action, the valve is such as to make changes in temperature very gradual. Starting with cold, the temperature can be gradually increased until the desired degree is reached. The cold water is admitted first and hot water gradually added. As the hot water increases, the cold water is reduced, thus making this a most economic device as regards the amount of hot water used—a very important point to consider in large shower installations.

One of the most essential points of the Niedecken Mixer is the anti-scalding feature. Provision has been made in the valve whereby it is possible to set it to a predetermined maximum temperature, thus absolutely preventing scalding. It will be readily seen that this anti-scalding feature alone goes a long way toward popularizing the shower bath.

Loose key stops are recommended in the supply pipes that feed the showers, mainly as a matter of convenience when the mixers need rewashering, and rewashering is advisable whenever the valves do not shut off tightly without special effort.

Whenever the Niedecken Mixer is used with a stop on the discharge side, it is advisable to use check valves in the supplies. Check valves used in connection with showers of this type will prevent the hot water from backing into the cold water supply in case the mixer is not shut off, and the shower simply shut off by the stop in the discharge pipe from the mixer.

SHOWING ACCESSIBILITY OF NIEDECKEN MIXER



Price,	½-inch, Exposed or Concealed	each	20.00
"	¾ " " " "	"	28.00
"	1 " " " "	"	40.00

SHOWER BATHS

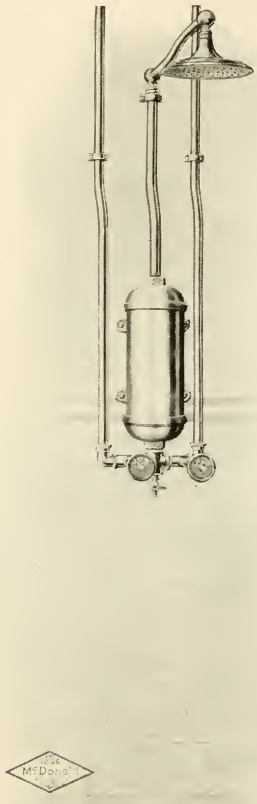


Plate E1261

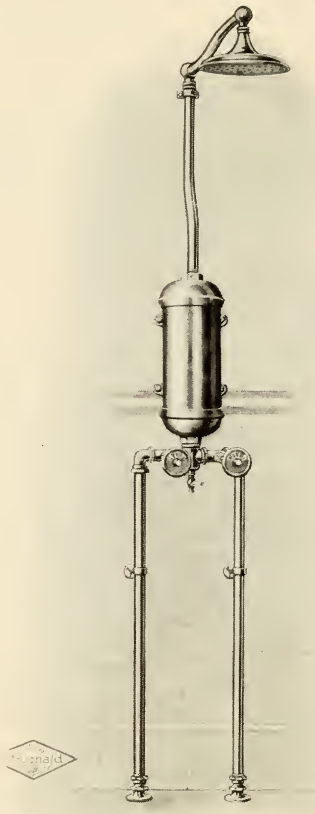


Plate E1262

PLATES E1261 AND E1262 NICKEL-PLATED

Nickel-plated Brass Shower with Brass Mixing Chamber and Drain Cock; Brass Valves, Supply Pipes and Head Shower; Brass Wall Supports; Nickel-plated Slip Joint Floor Flanges.

Price, as described..... **40.00**

PLATES E1261 AND E1262 GALVANIZED

With Galvanized Iron Mixing Chamber and Galvanized Iron Supply Pipes, otherwise Nickel-plated Brass, as described above.

Price, as described..... **25.00**

SHOWER BATHS

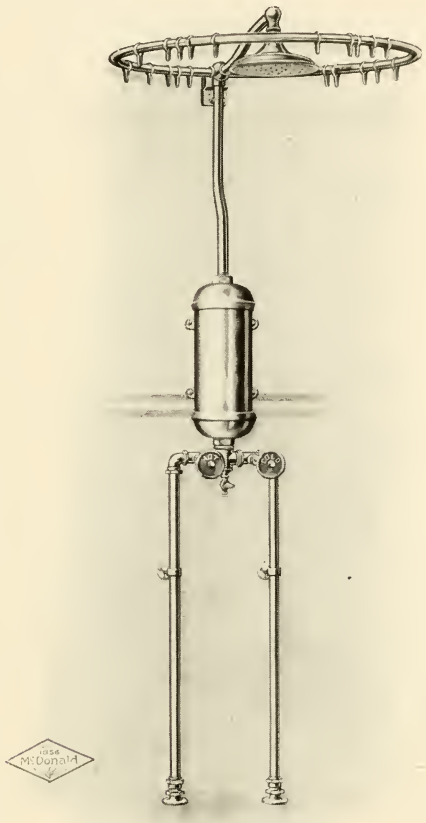


Plate E1271

Nickel-plated Brass Shower with Curtain Ring and Hooks, Brass Mixing Chamber, Brass Valves, Wall Supports, Slip Joint Floor Flanges and Drain Cock.

Price, as described..... **48.00**

With Galvanized Iron Mixing Chamber and Galvanized Iron Supply Pipes, otherwise Nickel-plated Brass, as described above.

Price, as described..... **32.00**

Add for Duck Curtain..... **7.00**

SHOWER BATHS

Plate E1281

The Diamond Portable Shower Bath has the advantage of being easily removed when place of habitation is changed, four screws being all that is necessary to attach it to the wall. It has the additional feature of being within reach of all in the matter of price. As copious a shower is obtained as through the more expensive permanently connected shower, as it has a 7-inch head. The diameter of the curtain ring and tubing is the same as is used on the permanent shower. The high arched head piece and general construction is artistic in detail and becomes an ornament to any bath room. The rubber tube and curtain are the very best. All metal parts are brass, heavily nickel-plated. So easily put in place that directions are scarcely necessary. There is nothing to get out of order or to cause repair. Complete with duck curtain and rubber tube.

Price, as described **16.00**

SHOWER HEADS

NEEDLE HEAD

Plate E1291

NEEDLE HEAD
REMOVABLE FACE

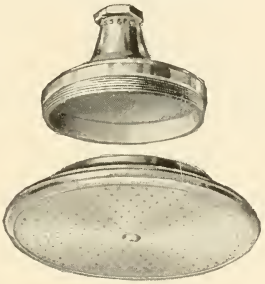


Plate E1292

TUBULAR SHOWER HEAD

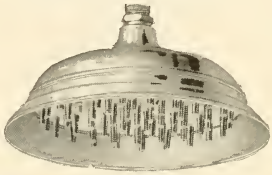


Plate E1293

Diameter ..... inches	4	5	6½	8	8
Size, I. P. Inlet ..... "	⅜	½	½	½	¾
Price, Needle Heads ..... each	1.30	1.45	1.75	....	2.00
" " " with Removable Face "	....	2.30	2.70	....	3.20
" Tubular Shower heads ..... "	....	....	....	3.00	....
Diameter ..... inches	10	10½	12	15	....
Size, I. P. Inlet ..... "	1	¾	1	1	....
Price, Needle Heads ..... each	3.20	....	4.30	6.00	....
" " " with Removable Face "	4.30	....	5.70	7.50	....
" Tubular Shower Heads ..... "	....	5.00	....	....	....

VITREOUS HEAD

Plate E1294

SHOWER HEAD
WITH BALL JOINT
AND REMOVABLE FACE

Plate E1295

ADJUSTABLE
BALL JOINT

Plate E1296

VITREOUS SHOWER HEADS

These vitreous heads overcome the objectionable corroding common to the brass heads and require no polishing to keep clean. The 6½-inch head is only to be used at an angle when supplied by ¾-inch pipe.

Diameter of Face ..... inches	4½	6½
Price, with ¾-inch Nickel-plated Brass Spuds ..... each	2.00	3.00

BRASS SHOWER HEADS WITH BALL JOINT AND REMOVABLE FACE

Diameter ..... inches	4	5
Pipe Thread ..... "	½	½
Price, Nickel-plated ..... each	3.60	4.50

ADJUSTABLE BALL JOINTS

Price, ½-inch, Nickel-plated ..... each	1.50
" ¾ " " " ..... "	2.00

SHAMPOO SPRINKLERS AND SHOWERS

SHAMPOO SPRINKLERS

PLAIN

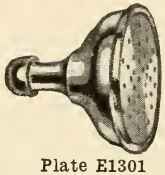


Plate E1301

WITH RUBBER RING

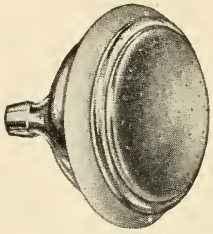


Plate E1302

WITH RUBBER RING AND LOOSE SHANK

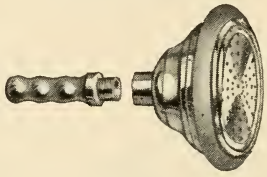


Plate E1303

WITH RUBBER RING AND LOOSE SHANK WITH ROSEWOOD HANDLE 5 INCHES LONG

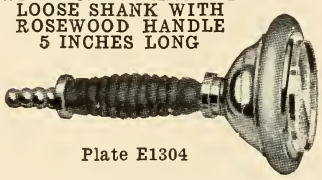


Plate E1304

Size of Face.....inches	2¼	2½	3	3½
Price, N. P. Plain.....per dozen	1.50	....	....	....
" " with Rubber Ring "	....	4.32	6.00	9.00
" " " " " "				
with Loose Shank..... "	....	6.60	9.70	14.70
" N.P. with Rosewood Handle "	....	17.00	....	26.00

WITH SINGLE FAUCET CONNECTION

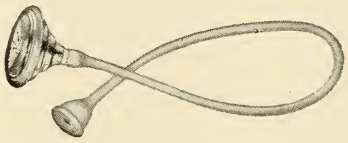


Plate E1305

WITH DOUBLE FAUCET CONNECTION

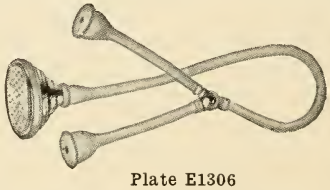


Plate E1306

Price, Rubber Bound Shampoo Sprinkler, 3 inches diam., with 5 feet Rubber Tubing and Single Faucet Connection.....each	.95
" with 3½-inch Sprinkler..... "	1.10
" " 4-inch " ..... "	1.30
" Rubber Bound Shampoo Sprinkler, 3 inches diam., with 5 feet Rubber Tubing and Double Faucet Connection.....each	1.60
" with 3½-inch Sprinkler..... "	1.75
" " 4-inch " ..... "	1.90

SPRAY SHOWER

Plate E1307

SHOULDER SHOWER RING

Plate E1308

SHOWER WITH OFFSET ARM AND BALL JOINT

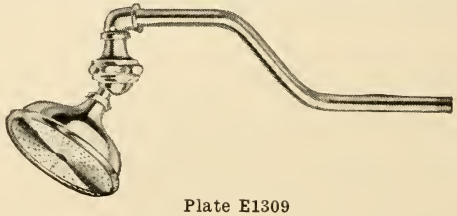


Plate E1309

Price, Nickel-plated Spray Shower with 5 feet Rubber Tubing.....each	1.25
If with Rubber Faucet Connection, add..... "	.25
Price, Nickel-plated Perforated 20-inch Shoulder Shower Ring with Nipple for ½-inch I. P. Size Thread.....each	6.50
" Nickel-plated Offset Arm with Ball Joint and 5-inch Shower, Arm ½-inch I. P. Size, Length, 20 inches.....each	7.50

SHOWER ACCESSORIES

CURTAIN RODS

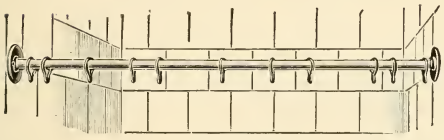


Plate E1311

Always specify length of rod wanted.

Price, Nickel-plated Brass Curtain Rod, 1⅛-inch O. D., for Recess up to 38 inches, with Nickel-plated Cast Brass Wall Flanges and Nickel-plated Curtain Pins.....each 7.60
For Each Additional Inch of Rod, add .20
If with Top Standards in Place of Wall Flanges, add..... 7.50

CURTAIN PINS

Plate E1312

Plate E1313

SELF-CLOSING SHOWER VALVE

Plate E1314

N. P. THERMOMETER

Plate E1315

Price, Curtain Pin No. 1, Takes Rod or Rings up to 1¼-inch O. D...per dozen 1.20
" " " " 2, " " " " " " ¾ " " ... " 1.00
" ½-inch N. P. Self-closing Shower Valves, with Ring and Chain.....each 4.90
" ¾ " " " " " " " " " ..... " 7.00
" N. P. Thermometer ..... " 6.00

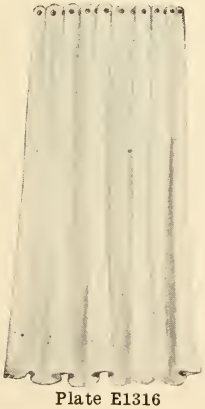


Plate E1316

SHOWER CURTAINS

Price, White Duck, 78 inches Wide, 72 inches Long..each 6.00
" " " Other Sizes.....per square foot .20
" " " 12-ounce Army..... On appl.
" Rubber, Single Coated, 78 inches Wide, 72 inches Long.....each 10.00
" Rubber, Single Coated, Other Sizes.per square foot .27
" " Double " 78 inches wide, 72 inches Long.....each 15.00
" Rubber, Double Coated, Other Sizes.per square foot .39
" Silk, 78 inches Wide, 72 inches Long.....each 50.00
" " Other Sizes .....per square foot 1.40

VITREOUS CHINA LAVATORIES

Plate E1321

Vitreous China Oval Lavatory with Oval Basin, Anti-Splash Rim, Vitreous China Pedestal with Rod. Nickel-plated Fuller Combination Supply and Waste Fitting with China Handles and China Knob, Nickel-plated Supply Pipes to Wall and Nickel-plated P Trap.

Slab 22x27 inches	Basin 13x17 inches
Slab 24x30 inches	Basin 14x20 inches
Slab 24x33 inches	Basin 14x20 inches

Size.....inches	22x27	24x30	24x33
Price, as described.....	**42.50**	**51.40**	**64.25**
" without Fittings.....	**33.00**	**41.00**	**51.00**

VITREOUS CHINA LAVATORIES

Plate E1331

Vitreous China Oval Lavatory with Splash Rim Basin, Round Plain Vitreous China Pedestal, Nickel-plated Compression Faucets with Four-Ball Handles with China Indexes, Nickel-plated Supply Pipes to Wall, Nickel-plated Standing Overflow and Waste with China Knob and 1¼-inch Nickel-plated Trap to Wall, and Nickel-plated Wall Supports.

Slab 24x33 inches Basin 14x20 inches Apron 2 inches

Price, as described	64.60
" without Fittings	51.00
If without Faucets, deduct, per pair	4.25
" " Supply Pipes, deduct, per pair	2.20
" " Standing Overflow and Waste, deduct	5.00
" " Trap, deduct	2.15
" with Stops in Supply Pipes, add	2.50
" " Vent on Trap, add	1.05

VITREOUS CHINA LAVATORIES

Plate E1341

Vitreous China Straight Front Lavatory with Oval Basin, Hooded Overflow and Splash Rim, Vitreous China Pedestal, Compression Supply Valves Concealed in Wall over Lavatory at Back, with China Handles and Connected to Integral Supply Nozzle Concealed in Slab over Overflow and Waste, Pop-up Waste with China Knob and China Escutcheon and Nickel-plated P Trap.

Slab 20x24 inches Basin 12x16 inches

Price, as described..... **75.00**

VITREOUS CHINA LAVATORIES

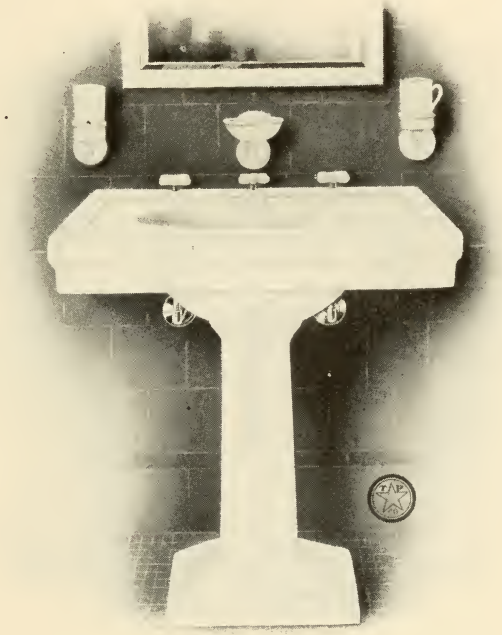


Plate E1351

Vitreous China Lavatory with All Roll Rim Square Slab, Integral China Spout and Mixing Chamber, Anti-splash Rim, Vitreous China Square Pedestal, Quick-compression Supply and Pop-up Waste Fittings with China Cross Handles and China Escutcheons, Nickel-plated Supply Pipes to Wall and Nickel-plated "P" Trap.

	Slab 22x26 inches Slab 22x28 inches Slab 24x30 inches Slab 24x33 inches	Basin 12x16 inches Basin 13x17 inches Basin 14x20 inches Basin 14x20 inches		
Size	22x26	22x28	24x30	24x33
Price, Complete, as described	51.25	54.75	57.40	65.10
" without Fittings	38.00	42.50	46.00	56.00

STYLE B FITTINGS

This Lavatory may also be furnished with Style B Nickel-plated Compression Combination Supply and Lift Waste Fitting with Solid China Indexed Cross Handles, China Indexed Waste Knob and China Escutcheons.

Plate E1352

VITREOUS CHINA LAVATORIES

Plate E1361

Vitreous China Lavatory with All Roll Rim Square Slab, Anti-splash Rim, Vitreous China Square Pedestal, Nickel-plated Fuller Faucets with China Handles, Nickel-plated Pop-up Waste Fitting with China Knob, Nickel-plated Supply Pipes to Wall and Nickel-plated "P" Trap.

Slab 20x24 inches	Basin 12x16 inches
Slab 22x26 inches	Basin 13x17 inches
Slab 24x30 inches	Basin 14x20 inches
Slab 24x33 inches	Basin 14x20 inches

Size.....inches	20x24	22x26	24x30	24x33
Price, Complete, as described	34.00	37.85	44.05	56.70
" without Fittings....	28.00	33.00	41.00	51.00

If Anti-splash Rim is omitted, deduct..... 1.00

This Lavatory may also be furnished with Nickel-plated Compression Combination Supply and Pop-up Waste Fitting with Four-arm China Indexed Handles, China Lever Waste Handle and China Escutcheons, as shown herewith; also with "Imperial" standing waste when so ordered.

Plate E1362

VITREOUS CHINA LAVATORIES

Plate E1371

Vitreous China Lavatory with All Roll Rim Waveline Square Slab, Integral China Spout and Mixing Chamber, Anti-splash Rim, Vitreous China Square Pedestal, Quick Compression Supply and Pop-up Waste Fitting, with China Handles and Escutcheons, Nickel-plated Supply Pipes to Wall and Nickel-plated P Trap.

Slab 24x30 inches Basin 14x20 inches
Slab 24x33 inches Basin 14x20 inches

Size ..... inches	24x30	24x33
Price, as described	58.45	66.10
[a] Less Trap and Supply Pipes	55.45	63.10

VITREOUS CHINA LAVATORIES

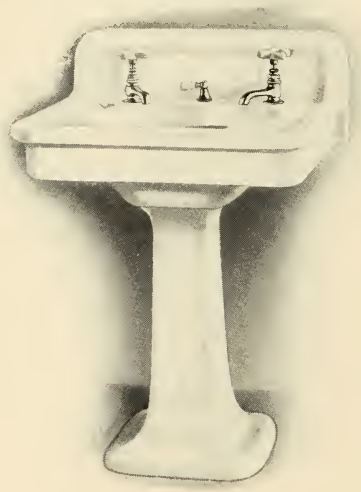


Plate E1381

Vitreous China Lavatory with Integral Back, Indented Soap Dish, Basin with Hooded Overflow, Vitreous China Pedestal, Wall Supports, Nickel-plated Compression Faucets with China Cross Handles, and Pop-up Waste with China Handle.

Slab 20x24 inches Basin 12½x17 inches Back 6 inches

Price, as described	49.75
" without Faucets and Waste	36.75

Supply Pipes and Trap extra.

VITREOUS CHINA LAVATORIES

Plate E1391

Vitreous China Lavatory with Integral Back, Vitreous China Leg and Wall Supports. Patent Overflow Basin, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, Pop-up Waste with China Knob and Nickel-plated "P" Trap.

Slab 18x20 inches Basin 11x14 inches Back 6 inches
Slab 21x24 inches Basin 12x16 inches Back 6 inches

Sizes	18x20	21x24
Price, as described	26.20	33.50

VITREOUS CHINA LAVATORIES

Plate E1401

Vitreous China All Roll Rim Lavatory, Vitreous China Leg and Wall Supports, Patent Overflow Basin, Nickel-plated Compression Faucets with China Handles, Nickel-plated Supply Pipes to Wall, Pop-up Waste with China Handle and Nickel-plated "P" Trap.

Slab 18x20 inches	Basin 11x14 inches
Slab 21x24 inches	Basin 12x16 inches
Slab 22x26 inches	Basin 13x17 inches
Slab 22x28 inches	Basin 13x17 inches

Sizes	18x20	21x24	22x26	22x28
Price, as described	25.65	27.95	31.80	35.25

VITREOUS CHINA LAVATORIES

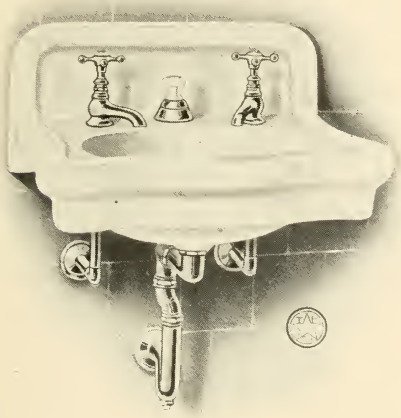


Plate E1411

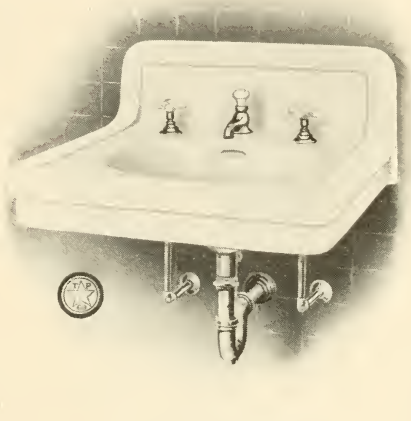


Plate E1412

PLATE E1411

Vitreous China Swelled Front Lavatory with Integral Back, Concealed Wall Hangers, Nickel-plated Compression Faucets with Four-ball China Index Handles, Nickel-plated Supply Pipe to Wall, Standing Waste and Overflow with China Knob and Nickel-plated P Trap.

Slab 19x20 inches Basin 11x14 inches Back 6 inches Apron 4 inches

Price, as described	22.20
" without Fittings	14.50

PLATE E1412

Vitreous China Straight Front Lavatory with Integral Back, Patent Overflow, Anti-splash Rim, Concealed Brackets, Nickel-plated Combination Supply and Pop-up Waste Fitting with Compression Valves with China Cross Handles, and China Knob, Nickel-plated Supply Pipes to Wall and Nickel-plated P Trap.

Slab 18x20 inches Basin 11x14 inches Back 6 Inches Apron 3 inches
Slab 20x24 inches Basin 12x16 inches Back 6 Inches Apron 3 inches

Sizes	18x20	20x24
Price, as described	25.35	34.35
" without Fittings	14.00	23.00

If without Anti-splash Rim, deduct 1.00

VITREOUS CHINA LAVATORIES

Plate E1421

Plate E1422

PLATE E1421

Vitreous China Round Front Lavatory with Integral Back, Patent Overflow, Anti-splash Rim, Concealed Wall Hangers, Nickel-plated Compression Faucets with Four Ball China Index Handles, Nickel-plated Supply Pipes to Wall, 1¼-inch Nickel-plated P Trap and Pop-up Waste with China Knob.

Slab 18x20 inches Bowl 11x14 inches Back 7 inches

Price, as described	**22.10**
" without Fittings	**14.00**
If without Anti-splash Rim, deduct	**1.00**

PLATE E1422

Vitreous China Round Front Lavatory with Integral Back, Patent Overflow, Concealed Wall Hangers, Nickel-plated Compression Faucets with Four Ball China Index Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated P Trap, Chain and Chain Stay.

Slab 19x20 inches Basin 11x14 inches Back 6 inches Apron 3 inches

Price, as described	**18.70**
" without Fittings	**13.00**

VITREOUS CHINA LAVATORIES

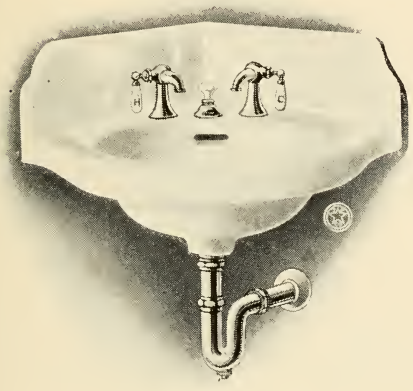


Plate E1431

Plate E1432

PLATE E1431

Vitreous China Corner Lavatory with Integral Back, Patent Overflow, Anti-splash Rim, Concealed Wall Hangers, Nickel-plated Fuller Faucets with China Handles, Nickel-plated Supply Pipes to Wall, Pop-up Waste with China Knob and Nickel-plated P Trap.

Along Sides 16½x16½ inches Bas'n 11x14 inches Back 6 inches
Along Sides 19½x19½ inches Basin 12x16 inches Back 6 inches

Sizes	16½x16½	19½x19½
Price, as described	27.60	36.50
" without Fittings	17.00	28.00

If without Anti-splash Rim, deduct 1.00

PLATE E1432

Vitreous China Corner Lavatory with Integral Back, Patent Overflow, Concealed Wall Hangers, Nickel-plated Compression Faucets with Four-ball China Index Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated P Trap, Chain and Chain Stay.

Along Sides 16½x16½ inches Basin 11x14 inches Back 6 inches

Price, as described	23.25
" without Fittings	16.00

VITREOUS CHINA LAVATORIES

IN BATTERIES

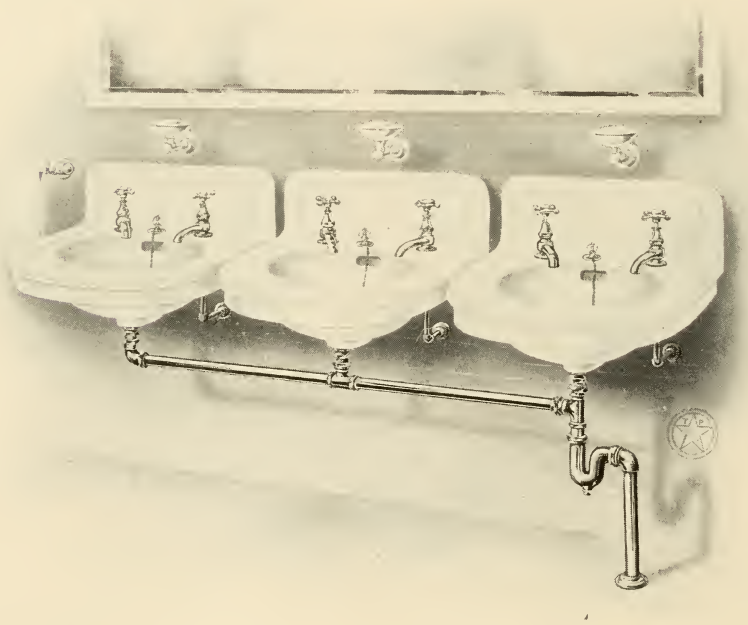


Plate E1441

Battery of Three Vitreous China Round Front Lavatories, with Integral Backs and Aprons, Oval Basins, Patent Overflows, Painted Iron Concealed Wall Hangers, Nickel-plated Compression Cross Handle Faucets with China Indexes, Nickel-plated Supply Pipes to Wall, Nickel-plated Continuous Waste and "S" Trap, Plugs and Chain Stays.

Slabs 18x20 inches Basins 11x14 inches Aprons 3 inches Backs 6 inches

Price, Battery of Three, as described	75.40
" Each Lavatory only, without Fittings	13.00
" Faucets, per pair	4.00
" Supply Pipe, per pair	2.20
" Chain Stays and Plugs, per set	1.60
" Continuous Waste and Trap for Three Lavatories	13.00

VITREOUS CHINA LAVATORIES

IN BATTERIES

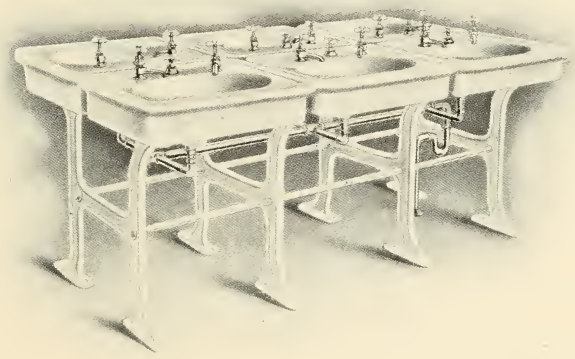


Plate E1451

Battery of Six (Three Double Sections) Vitreous China All Roll Rim Square Lavatories with Integral Soap Dishes, set on Painted Iron Frames and fitted with Compression Faucets with Four-Arm China Handles, Nickel-plated Brass "Ideal" Waste with China Knob and Nickel-plated Brass 1½-inch Combination Waste with 1½-inch "S" Trap.

Slabs 20x22 inches Basins 12x16 inches Apron 5 inches

Price, as described	167.00
" without Fittings	119.00
Add for each additional Double Section, as described	73.00
" " " " " " without Fittings	39.00
If with Continuous Supply Pipe for Battery, add	15.00
" without Continuous Waste and Trap on Battery, deduct	28.00

ENAMELED IRON LAVATORIES

Plate E1461

Plate E1462

PLATE E1461

Enameled Iron Lavatory with Slab, Oval Basin with Rear Outlet and Apron all in one piece, Enameled Plain Square Pedestal, Nickel-plated Compression Faucets with China Cross Handles and China Indexes, ⅜-inch Nickel-plated Supply Pipes to Wall, with China Indexed Stops, Standing Waste and Overflow, China Knob, and 1¼-inch Nickel-plated P Trap.

Slab 24x33 inches Basin 13¼x18½ inches Apron 4½ inches

Price, as described	76.50
" without Fittings	49.00

PLATE E1462

Enameled Iron Lavatory with Slab, Oval Basin with Rear Outlet and Apron all in one piece, Enameled Plain Square Pedestal, Nickel-plated Compression Combination Supply and Waste Fitting with China Cross Handles, China Indexes and China Knob, ⅜-inch Nickel-plated Supply Pipe to Wall, with China Indexed Stops and 1¼-inch Nickel-plated P Trap.

Slab 24x33 inches Basin 13¼x18½ inches Apron 4½ inches

Price, as described	88.80
" without Fittings	49.00

ENAMELED IRON LAVATORIES

Plate E1471

Plate E1472

PLATE E1471

Enameled Iron Pedestal Lavatory with Oval Slab, Oval Basin with Rear Outlet and Apron all in one piece, Enameled Iron Fluted Column Pedestal, Nickel-plated Compression Faucets with China Cross Handles and China Indexes, ⅜-inch Nickel-plated Supply Pipes to Wall with China Indexed Stops, Nickel-plated Standing Waste with China Knob and 1¼-inch Nickel-plated Bag Trap.

Slab 18x27 inches Basin 11x15 inches Apron 4 inches
Slab 22x33 inches Basin 13x18 inches Apron 5¾ inches

Sizes ..... inches	18x27	22x33
Price, as described,	**62.00**	**70.00**
" without Fittings,	**34.50**	**42.50**

PLATE E1472

Enameled Iron Pedestal Lavatory with Slab, Oval Basin with Rear Outlet and Apron all in one piece, Enameled Iron Plain Square Pedestal, Nickel-plated Fuller Faucets with China Handles, China Indexes and China Bases, ⅜-inch Nickel-plated Supply Pipes to Wall with China Indexed Stops, Nickel-plated Standing Waste with China Knob and 1¼-inch Nickel-plated Bag Trap.

Slab 24x33 inches Basin 13x17 inches Apron 5 inches

Price, as described,	**82.30**
" without Fittings,	**49.00**

ENAMELED IRON LAVATORIES

Plate E1481

Enameled Iron Pedestal Lavatory with Slab, D Pattern Basin with Rear Outlet and Apron all in one piece, Enameled Iron Pedestal, Nickel-plated Combination Supply and Waste Fittings with Compression Valves, China Cross Handles, China Knob and China Escutcheons, ⅜-inch Nickel-plated Supply Pipes with China Indexed Stops and 1¼-inch P Trap.

Slab 20x28 inches Basin 12x15 inches Apron 4½ inches
Slab 24x34 inches Basin 14x18 inches Apron 4½ inches

Size ..... inches	20x28	24x34
Price, as described ..... each	**81.40**	**96.60**
" without Fittings ..... "	**46.10**	**56.80**

ENAMELED IRON LAVATORIES

Plate E1491

Enameled Iron Pedestal Lavatory with Slab, D Pattern Basin with Rear Outlet and Apron all in one piece, Enameled Iron Pedestal, Nickel-plated Compression Faucets with China Cross Handles, $\frac{3}{8}$-inch Nickel-plated Supply Pipes to Wall with China Indexed Stops, Standing Waste and Overflow with China Knob and $1\frac{1}{4}$-inch Nickel-plated Trap.

Slab 20x28 inches	Basin 12x15 inches	Apron $4\frac{1}{2}$ inches
Slab 24x34 inches	Basin 14x18 inches	Apron $4\frac{1}{2}$ inches

Size ..... inches	20x28	24x34
Price, as described	73.60	79.80
" without Fittings	46.10	56.80

ENAMELED IRON LAVATORIES

Plate E1501

Enameled Iron Pedestal Lavatory with Slab, D Pattern Basin with Rear Outlet and Apron all in One Piece, Enameled Iron Pedestal, Nickel-plated Compression Combination Supply and Secret Waste Fitting with Indexed China Cross Handles, China Knob and China Escutcheons, ⅜-inch Nickel-plated Supply Pipes to Wall with China Indexed Stops and 1¼-inch Nickel-plated Offset P Trap.

Slab 20x28 Inches	Basin 12x15 Inches	Apron 4½ Inches
Slab 24x34 Inches	Basin 14x18 Inches	Apron 4½ Inches

Sizes ..... inches	20x28	24x34
Price, as described	**81.40**	**96.60**
" without Fittings	**46.10**	**56.80**

ENAMELED IRON LAVATORIES

Plate E1511

Enameled Iron Pedestal Lavatory with Slab, D Pattern Basin with Patent Overflow, Depressed Soap Dish, and Rear Outlet and Apron all in one piece, Enameled Iron Pedestal, Nickel-plated Compression Faucets with Indexed China Cross Handles, $\frac{3}{8}$-inch Nickel-plated Supply Pipes to Wall with China Indexed Stops, Pop Up Waste with China Knob, $1\frac{1}{4}$-inch Nickel-plated P Trap.

Slab 20x28 inches	Basin 12x15 inches	Apron $4\frac{1}{2}$ inches
Slab 24x34 inches	Basin 14x18 inches	Apron $4\frac{1}{2}$ inches

Size ..... inches	20x28	24x34
Price, as described.	74.00	84.70
" without Fittings.	46.10	56.80

ENAMELED IRON LAVATORIES

Plate E1521

Enameled Iron Pedestal Lavatory with Slab, D Pattern Basin and Apron all in one piece; Enameled Iron Pedestal; Nickel-plated Compression Combination Supply and Waste Fitting with Indexed China Cross Handles and China Knob; ⅜-inch Nickel-plated Supply Pipes and 1¼-inch Nickel-plated Bag Trap.

Slab 20x28 inches Basin 12x15 inches Apron 5 inches
Slab 24x34 inches Basin 14x18 inches Apron 5 inches

Size.....inches	20x28	24x34
Price, as described.....	**76.70**	**91.90**
" without Fittings.....	**46.10**	**56.80**

ENAMELED IRON LAVATORIES

Plate E1531

Enameled Iron Pedestal Lavatory with Slab, D Pattern Basin, Patented Overflow, Depressed Soap Dish, and Apron all in one piece, Enameled Iron Pedestal, Nickel-plated Compression Faucets with Indexed China Cross Handles, ⅜-inch Nickel-plated Supply Pipes to Wall, Pop-up Waste with China Handle and 1¼-inch Nickel-plated P Trap.

Slab 20x28 inches	Basin 12x15 inches	Apron 5 inches
Slab 24x34 inches	Basin 14x18 inches	Apron 5 inches

Size.....inches	20x28	24x34
Price, as described	**69.30**	**80.00**
" without Fittings	**46.10**	**56.80**

ENAMELED IRON LAVATORIES

Plate E1541

Enameled Iron Pedestal Lavatory with Square Slab, D Pattern Basin with Rear Outlet and Apron all in one piece, Enameled Iron Pedestal, Nickel-plated Compression Combination Supply and Waste Fitting with China Indexed Four-arm Handles and China Knob on Waste, $\frac{3}{8}$-inch Nickel-plated Supply Pipes and $1\frac{1}{4}$-inch Bag Trap.

Slab 20x24 inches	Basin 12x15 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Apron 5 inches

Size ..... inches	20x24	22x27
Price, as described	**61.40**	**70.90**
" without Fittings	**30.80**	**35.80**

ENAMELED IRON LAVATORIES

Plate E1551

Enameled Iron Pedestal Lavatory with Square Slab, D Pattern Basin with Rear Outlet, Patent Overflow and Apron all in one piece, Enameled Iron Pedestal, Nickel-plated Compression Faucets with Indexed China Cross Handles, ⅜-inch Nickel-plated Supply Pipes to Wall, Pop-up Waste with China Cross Handle and 1¼-inch Nickel-plated P Trap.

Slab 20x24 inches	Basin 12x15 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Apron 5 inches

Size.....inches	20x24	22x27
Price, as described.....	54.00	59.00
" without Fittings.....	30.80	35.80

ENAMELED IRON LAVATORIES

Plate E1561

Enameled Iron Pedestal Lavatory with Square Slab, D Pattern Basin with Rear Outlet, Patent Overflow and Apron all in one piece, Soap Dish Cast in Slab, Enameled Iron Pedestal, Nickel-plated Compression Faucets with China Cross Handles, ⅜-inch Nickel-plated Supply Pipes to Wall with China Indexed Stops, 1¼-inch P Trap, Waste Plug and Chain Stay Bolt.

Slab 20x24 inches	Basin 12x15 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Apron 5 inches

Size.....inches	20x24	22x27
Price, as described.....	**50.80**	**55.80**
" without Fittings.....	**30.80**	**35.80**

ENAMELED IRON LAVATORIES

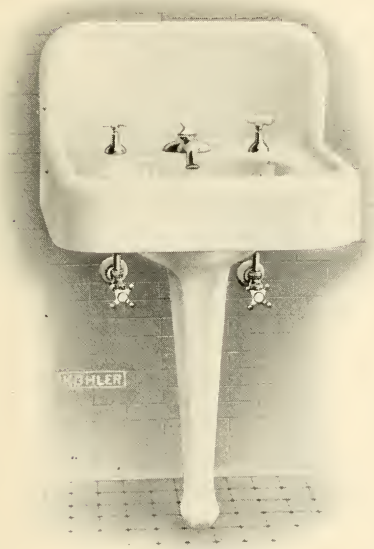


Plate E1571

Plate E1572

PLATE E1571

Enameled Iron Lavatory with Slab, D Pattern Basin with Rear Outlet, Back and Apron all in one piece, Enameled Iron Hexagonal Leg, Concealed Hanger, Nickel-plated Compression Combination Supply and Waste Fitting with China Indexed Handles and China Knob on Waste, Nickel-plated Supply Pipes to Wall with China Indexed Stops and Nickel-plated P Trap.

Slab 18x24 inches	Basin 12x15 inches	Back 10 inches	Apron 5 inches
Slab 20x24 inches	Basin 12x15 inches	Back 12 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Back 12 inches	Apron 5 inches

Sizes ..... inches	18x24	20x24	22x27
Price, as described, ...	54.80	57.80	74.80
" without Fittings, ...	19.50	22.50	35.00

PLATE E1572

Enameled Iron Pedestal Lavatory with Slab, D Pattern Basin with Patent Overflow and Rear Outlet, Back and Apron all in one piece, Enameled Iron Hexagonal Leg, Concealed Hanger, Nickel-plated Fuller Faucets with China Bases, China Handles and China Indexes, Pop-up Waste with China Lever Handle, Nickel-plated Supply Pipes, to Wall with China Indexed Stops and Nickel-plated P Trap.

Slab 18x24 inches	Basin 12x15 inches	Back 10 inches	Apron 5 inches
Slab 20x24 inches	Basin 12x15 inches	Back 12 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Back 12 inches	Apron 5 inches

Sizes ..... inches	18x24	20x24	22x27
Price, as described, ...	52.40	55.40	67.90
" without Fittings, ...	19.50	22.50	35.00

ENAMELED IRON LAVATORIES

BUILT-IN

Plate E1581

Plate E1582

PLATE E1581

Enameled Iron Built-in Lavatory for Building 7/8-inch into Wall, with Slab with Two Depressed Soap Cups, D Pattern Basin with Patent Overflow and Rear Outlet, Apron and Concealed Hanger Flange all in One Piece, Enameled Iron Hexagonal Leg, Combination Supply and Waste Fitting with 3/8-inch Anti-scalding Mixer with China Handle and Dial and Supply Connections for Iron Pipe, Lift Waste with China Handle and Escutcheon, and Nickel-plated P Trap.

Slab 19x24 inches Basin 12x15 inches Apron 5 inches

Price, as described	**76.80**
" without Fittings	**40.20**

PLATE E1582

Enameled Iron Built-in Lavatory for Building 7/8-inch into Wall, with Slab with two Depressed Soap Cups, D Pattern Basin with Patent Overflow and Rear Outlet, Apron and Concealed Hanger Flange all in One Piece, Enameled Iron Hexagonal Leg, Combination Supply and Lift Waste Fitting with Compression Valves with China Cross Handles and China Escutcheons, and China Knob on Waste, Nickel-plated Supply Pipes to Wall with China Indexed Stops and Nickel-plated P Trap.

Slab 19x24 inches Basin 12x15 inches Apron 5 inches

Price, as described	**63.60**
" without Fittings	**40.20**

ENAMELED IRON LAVATORIES

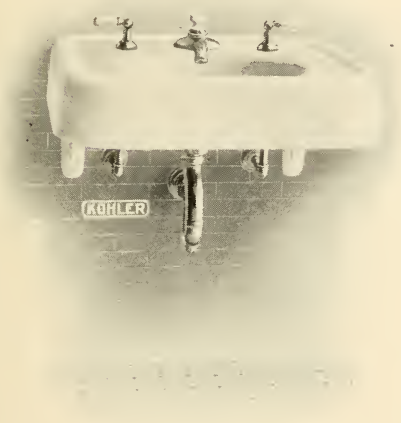


Plate E1591

Plate E1592

PLATE E1591

Enameled Iron Lavatory with Slab, D Pattern Basin with Rear Outlet and Apron All in One Piece, Enameled Iron Concealed Brackets, Nickel-plated Fuller Combination Supply and Waste Fitting with China Indexed Handles and China Knob on Waste, Nickel-plated Supply Pipes to Wall and Nickel-plated Bag Trap.

Slab 20x24 inches	Basin 12x15 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Apron 5 inches

Sizes.....inches	20x24	22x27
Price, as described,	52.40	57.40
" without Fittings	20.20	25.20

PLATE E1592

Enameled Iron Lavatory with Slab, D Pattern Basin with Rear Outlet, Patent Overflow and Apron All in One Piece, Enameled Iron Concealed Brackets, Nickel-plated Fuller Faucets with China Bases, China Handles and China Indexes, Pop-up Waste with China Lever Handle, Nickel-plated Supply Pipes to Wall and Nickel-plated P Trap.

Slab 20x24 inches	Basin 12x15 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Apron 5 inches

Sizes.....inches	20x24	22x27
Price, as described,	48.60	53.60
" without Fittings	20.20	25.20

ENAMELED IRON LAVATORIES

Plate E1601

Plate E1602

PLATE E1601

Enameled Iron Lavatory with Slab, D Pattern Basin with Rear Outlet, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated Compression Combination Supply and Standing Waste Fitting with Indexed China Cross Handles and China Knob, $\frac{3}{8}$-inch Nickel-plated Supply Pipes to Wall and $1\frac{1}{4}$-inch Nickel-plated Bag Trap.

Slab 18x24 inches	Basin 12x15 inches	Back 10 inches	Apron 5 inches
Slab 20x24 inches	Basin 12x15 inches	Back 12 inches	Apron 5 inches

Sizes	18x24	20x24
Price, as described, Enameled Exterior	**43.60**	**46.60**
" without Fittings, Enameled Exterior	**13.00**	**16.00**

PLATE E1602

Enameled Iron Lavatory with Slab, D Pattern Basin with Rear Outlet, Back and Apron, all in one piece, Concealed Wall Hanger, Nickel-plated Fuller Faucets with China Bases, China Handles and China Indexes, $\frac{3}{8}$-inch Nickel-plated Supply Pipes to Wall, Standing Waste and Overflow with Indexed China Knob and $1\frac{1}{4}$-inch Nickel-plated P Trap.

Slab 18x24 inches	Basin 12x15 inches	Apron 5 inches
Slab 20x24 inches	Basin 12x15 inches	Apron 5 inches

Sizes	18x24	20x24
Price, as described, Enameled Exterior	**41.60**	**44.60**
" without Fittings, Enameled Exterior	**13.00**	**16.00**

ENAMELED IRON LAVATORIES

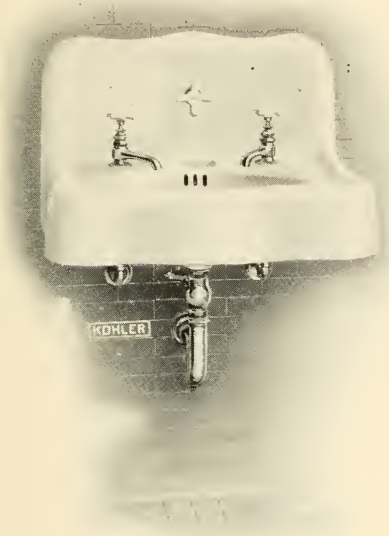


Plate E1611

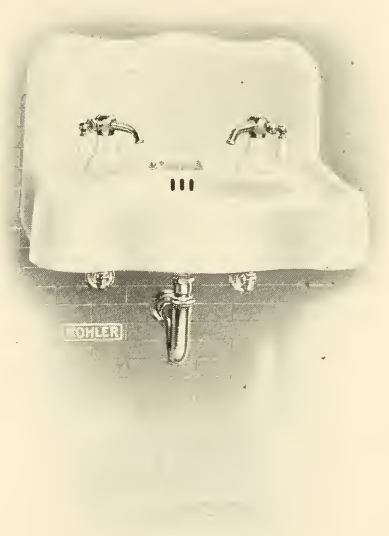


Plate E1612

PLATE E1611

Enameled Iron Lavatory with Slab. "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, Lift Waste for operating through Back with China Indexed Four-Arm Handle, and 1¼-inch Nickel-plated "P" Trap.

Slab 18x24 inches Basin 12x15 inches Apron 5 inches
Slab 20x24 inches Basin 12x15 inches Apron 5 inches

Sizes	18x24	20x24
Price, as described,	**36.00**	**39.00**
" without Fittings,	**13.00**	**16.00**

PLATE E1612

Enameled Iron Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated Fuller Faucets with China Bases, China Handles and China Indexes, Nickel-plated Supply Pipes to Wall, 1¼-inch Nickel-plated "P" Trap and Chain Stay Bolt.

Slab 18x24 inches Basin 12x15 inches Apron 5 inches
Slab 20x24 inches Basin 12x15 inches Apron 5 inches

Sizes	18x24	20x24
Price, as described,	**34.10**	**37.10**
" without Fittings,	**13.00**	**16.00**

ENAMELED IRON LAVATORIES

Plate E1621

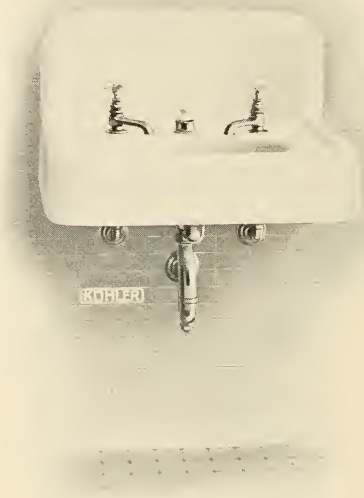


Plate E1622

PLATE E1621

Enameled Iron Lavatory with Slab, D Pattern Basin with Rear Outlet, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated; Fuller Combination Supply and Waste Fitting with China Handles and China Knob. Nickel-plated Supply Pipes to Wall and Nickel-plated Bag Trap.

Slab 17x21 inches	Basin 11 x14 inches	Back 8 inches	Apron 4½ inches	
Slab 18x24 inches	Basin 12 x15 inches	Back 10 inches	Apron 5 inches	
Slab 20x24 inches	Basin 12 x15 inches	Back 12 inches	Apron 5 inches	
Slab 22x27 inches	Basin 14 x18 inches	Back 12 inches	Apron 5 inches	

Size.....inches	17x21	18x24	20x24	22x27
Price, as described.....	**42.20**	**45.20**	**48.20**	**66.90**
" without Fittings.....	**10.00**	**13.00**	**16.00**	**28.50**

PLATE E1622

Enameled Iron Lavatory with Slab, D Pattern Basin with Rear Outlet, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, Standing Overflow and Waste with China Knob and Nickel-plated Bag Trap.

Slab 17x21 inches	Basin 11 x14 inches	Back 8 inches	Apron 4½ inches	
Slab 18x24 inches	Basin 12 x15 inches	Back 10 inches	Apron 5 inches	
Slab 20x24 inches	Basin 12 x15 inches	Back 12 inches	Apron 5 inches	
Slab 22x27 inches	Basin 14 x18 inches	Back 12 inches	Apron 5 inches	

Size.....inches	17x21	18x24	20x24	22x27
Price, as described.....	**32.80**	**35.80**	**38.80**	**51.30**
" without Fittings.....	**10.00**	**13.00**	**16.00**	**28.50**

ENAMELED IRON LAVATORIES

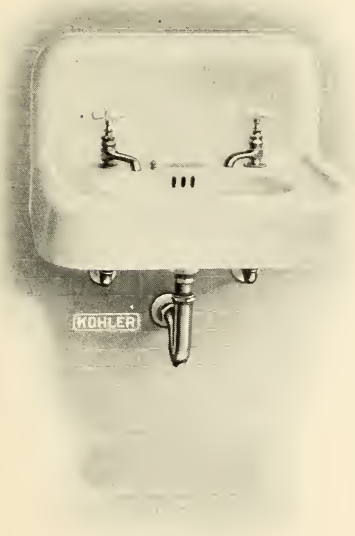


Plate E1631

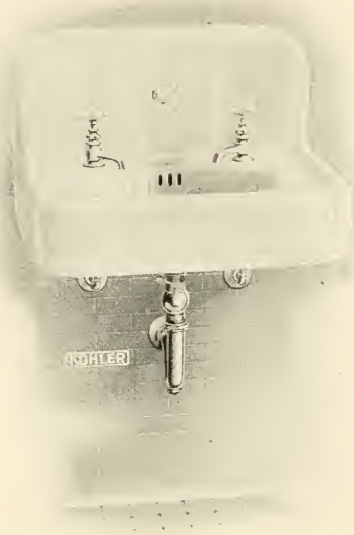


Plate E1632

PLATE E1631

Enameled Iron Lavatory with Slab, Depressed Soap Dish, D Pattern Basin with Patent Overflow and Rear Outlet, Back and Apron all in one piece, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall and Nickel-plated P Trap.

Slab 17x21 inches	Basin 11x14 inches	Back 8 inches	Apron 4½ inches
Slab 18x24 inches	Basin 12x15 inches	Back 10 inches	Apron 5 inches
Slab 20x24 inches	Basin 12x15 inches	Back 12 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Back 12 inches	Apron 5 inches

Size.....inches	17x21	18x24	20x24	22x27
Price, as described, Enameled Exterior.....	**25.30**	**28.30**	**31.30**	**43.80**
" without Fittings.....	**10.00**	**13.00**	**16.00**	**28.50**

PLATE E1632

Enameled Iron Lavatory with Slab, D Pattern Basin with Patent Overflow and Rear Outlet, Back and Apron all in one piece, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes, Pop-up Waste with China Cross Handle operating through Back and Nickel-plated P Trap.

Slab 17x21 inches	Basin 11x14 inches	Back 8 inches	Apron 4 ½inches
Slab 18x24 inches	Basin 12x15 inches	Back 10 inches	Apron 5 inches
Slab 20x24 inches	Basin 12x15 inches	Back 12 inches	Apron 5 inches
Slab 22x27 inches	Basin 14x18 inches	Back 12 inches	Apron 5 inches

Size.....inches	17x21	18x24	20x24	22x27
Price, as described, Enameled Exterior.....	**33.00**	**36.00**	**39.00**	**51.50**
" without Fittings.....	**10.00**	**13.00**	**16.00**	**28.50**

ENAMELED IRON LAVATORIES

Plate E1641

Plate E1642

PLATE E1641

Enameled Iron Corner Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish, Back, Left-hand End and Apron all in one piece, Concealed Wall Hangers, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, 1¼-inch "P" Trap and Chain Stay Bolt.

Slab 18x24 inches	Basin 12x15 inches	Back 10 inches	Apron 5 inches
Slab 20x24 inches	Basin 12x15 inches	Back 12 inches	Apron 5 inches

Sizes	18x24	20x24
Price, as described,	**33.30**	**36.30**
" without Fittings,	**18.00**	**21.00**

Can also be furnished for right-hand corner at same price.

PLATE E1642

Enameled Iron Recess Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Back, End Pieces and Apron all in one piece, Concealed Wall Hangers, Nickel-plated Fuller Faucets with China Bases, China Handles and China Indexes, Nickel-plated Supply Pipes to Wall, Standing Overflow and Waste with China Knob and Nickel-plated "P" Trap.

Slab 18x24 inches	Basin 12x15 inches	Back 7½ inches	Apron 5 inches
Slab 20x26 inches	Basin 12x15 inches	Back 8 inches	Apron 5 inches

Sizes	18x24	20x26
Price, as described,	**55.60**	**57.60**
" without Fittings,	**27.00**	**29.00**

ENAMELED IRON LAVATORIES

Plate E1651

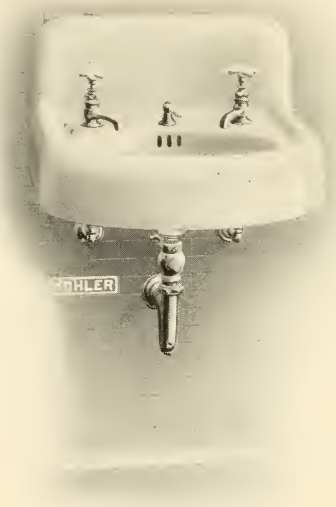


Plate E1652

PLATE E1651

Enameled Iron Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated Fuller Faucets with China Indexed Handles, Nickel-plated Supply Pipes to Wall, Pop-up Waste with China Indexed Lever Handle operating through Back and 1¼-inch Nickel-plated "P" Trap.

Slab 18x21 inches Basin 11x14 inches Back 8 inches Apron 4¾ inches
Slab 19x24 inches Basin 12x15 inches Back 10 inches Apron 5 inches

Sizes	18x21	19x24
Price, as described,	33.00	37.80
" without Fittings,	9.75	14.50

PLATE E1652

Enameled Iron Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Patent Overflow, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, Pop-up Waste with China Indexed Lever Handle and 1¼-inch Nickel-plated "P" Trap.

Slab 18x21 inches Basin 11x14 inches Back 8 inches Apron 4¾ inches
Slab 19x24 inches Basin 12x15 inches Back 10 inches Apron 5 inches

Sizes	18x21	19x24
Price, as described,	32.35	37.10
" without Fittings,	9.75	14.50

ENAMELED IRON LAVATORIES

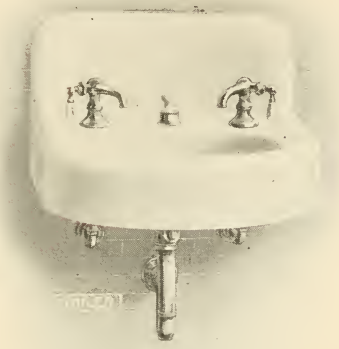


Plate E1661

Plate E1662

PLATE E1661

Enameled Iron Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated Fuller Faucets with China Indexed Handles, Nickel-plated Supply Pipes to Wall, Standing Overflow and Waste with China Knob and Nickel-plated Bag Trap.

Slab 17x19 inches	Basin 11x14 inches	Back 6½ inches	Apron 4⅜ inches
Slab 18x21 inches	Basin 11x14 inches	Back 8 inches	Apron 4¾ inches
Slab 19x24 inches	Basin 12x15 inches	Back 10 inches	Apron 5 inches

Sizes ..... inches	17x19	18x21	19x24
Price, as described, ...	32.45	33.45	38.20
" without Fittings, ...	8.75	9.75	14.50

PLATE E1662

Enameled Iron Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish, Back and Apron all in one piece, Concealed Wall Hanger, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated "P" Trap and Chain Stay Bolt.

Slab 17x19 inches	Basin 11x14 inches	Back 6½ inches	Apron 4⅜ inches
Slab 18x21 inches	Basin 11x14 inches	Back 8 inches	Apron 4¾ inches
Slab 19x24 inches	Basin 12x15 inches	Back 10 inches	Apron 5 inches

Sizes ..... inches	17x19	18x21	19x24
Price, as described, ...	24.00	25.00	29.80
" without Fittings, ...	8.75	9.75	14.50

ENAMELED IRON LAVATORIES

Plate E1671

Plate E1672

PLATE E1671

Enameled Iron Lavatory with Slab, Basin with Patent Overflow, Back and Apron all in one piece, Depressed Soap Cups in Slab, Concealed Wall Hangers, Nickel-plated Compression Faucets with China Cross Handles, Lift Waste with China Handle in Back of Lavatory, Nickel-plated Supply Pipes to Wall and Nickel-plated "P" Trap.

Slab 13x26 inches Basin 10x16½ inches Back 4 inches

Price, as described, Enameled Exterior	34.40
" without Fittings, Enameled Exterior	15.00

PLATE E1672

Enameled Iron Lavatory with Slab, Basin with Patent Overflow, Back and Apron all in one piece, Depressed Soap Cups in Slab, Concealed Wall Hangers, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall and Nickel-plated "P" Trap.

Slab 13x26 inches Basin 10x16½ inches Back 4 inches Apron 4 inches

Price, as described, Enameled Exterior	26.70
" without Fitting, Enameled Exterior	15.00

ENAMELED IRON LAVATORIES

Plate E1681

Plate E1682

PLATE E1681

Enameled Iron Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish and Back all in one piece, Concealed Wall Hanger, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated "P" Trap and Chain Stay Bolt.

Slab 18x21 inches Basin 11x14 inches Back 8 inches
Slab 19x24 inches Basin 12x15 inches Back 10 inches

Size	18x21	19x24
Price, as described, Enameled Exterior	**24.00**	**27.55**
" without Fittings, Enameled Exterior	**8.75**	**12.25**

PLATE E1682

Enameled Iron Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish and Back all in one piece, Concealed Wall Hanger, Nickel-plated Fuller Faucets with China Indexed Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated "P" Trap and Chain Stay Bolt.

Slab 17x19 inches Basin 11x14 inches Back 6 inches

Price, as described, Enameled Exterior	**22.95**
" without Fittings, Enameled Exterior	**6.75**

ENAMELED IRON LAVATORIES

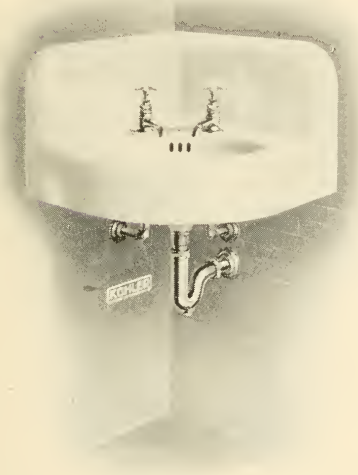


Plate E1691

Plate E1692

PLATE E1691

Enameled Iron Corner Lavatory with "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish, Back and Apron all in one piece, Concealed Wall Hangers, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated "P" Trap and Chain Stay Bolt.

Length on Sides 19 inches Basin 11x14 inches Back 8 inches Apron 5 inches

Size ..... inches	19x19x8
Price, as described, ...	28.00
" without Fittings, ...	12.75

PLATE E1692

Enameled Iron Corner Lavatory with Slab, "D" Pattern Basin with Rear Outlet, Patent Overflow, Depressed Soap Dish, Back and Apron all in one piece, Concealed Wall Hangers, Nickel-plated Fuller Faucets with China Indexed Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated "P" Trap and Chain Stay Bolt.

Length on Sides 16½ inches Basin 11x14 inches Back 6 inches Apron 5 inches

Price, as described, ...	27.00
" without Fittings, ...	10.75

ENAMELED IRON LAVATORIES

Plate E1701

Plate E1702

PLATE E1701

Enameled Iron Corner Lavatory with Slab, Oval Basin with Center Outlet, Patent Overflow, Back, and Soap Dish all in one piece, Concealed Wall Hangers, Nickel-plated Compression Faucets with China Cross Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated P Trap and Chain Stay Bolt.

Length on Sides 16½ inches Basin 11x14 inches Back 6 inches

Price, as described, Enameled Exterior	**23.30**
" without Fittings, Enameled Exterior	**8.00**

PLATE E1702

Enameled Iron Corner Lavatory with Slab, Round Basin with Center Outlet, Patent Overflow, Back and Soap Dish all in one piece, Concealed Wall Hangers, Nickel-plated Fuller Faucets, Nickel-plated Supply Pipes to Wall, Nickel-plated P Trap and Chain Stay Bolt.

Length on Sides 15 inches Basin 12 inches Back 5 inches

Price, as described, Enameled Exterior	**19.80**
" without Fittings, Enameled Exterior	**7.00**

ENAMELED IRON LAVATORIES

Plate E1711

Enameled Iron Lavatory with Slab, Round Basin with Center Outlet, Patent Overflow and Back all in one piece, Concealed Wall Hanger, Nickel-plated Compression Faucets with China Index Handles, Nickel-plated Supply Pipes to Wall, Nickel-plated P Trap and Chain Stay Bolt.

Width 14 inches Basin 12 inches Back 5 inches

Price, as described, Enameled Exterior	17.95
Price, without Fittings, Enameled Exterior	6.25

Enameled Iron Dental Lavatory with Slab, Back, Oval Basin and Depressed Tumbler Holder all in one piece, Concealed Hanger, Nickel-plated Compression Basin Cock with China Index, 1¼-inch P Trap and Special Waste Plug.

Slab 12x13 inches Basin 7x9 inches Back 5 inches

Price, as described, Enameled Exterior	21.85
Price, with Waste Plug only	14.20
If Enameled All Over, add	4.10

Plate E1712

ENAMELED IRON LAVATORIES

IN BATTERIES

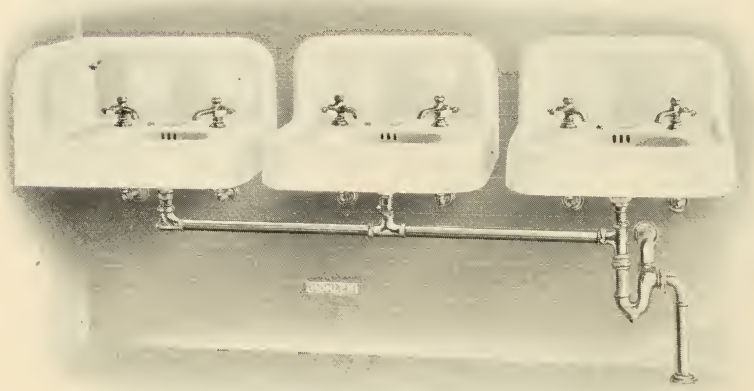


Plate E1721

Battery of Three Enameled Iron Lavatories, each Lavatory with Slab, Soap Depression, Rear Outlet Bowl, Back and Apron all in one piece, with Concealed Wall Hangers, Low Down Self-closing Faucets, Nickel-plated Supply Pipes to Wall, Nickel-plated Continuous Waste and "S" Trap and Plugs and Chain Stays.

Slab 18x24 inches Bowl 12x15 inches Back 10 inches
Slab 20x24 inches Bowl 12x15 inches Back 12 inches

Sizes	18x24	20x24
Price, as described	**101.10**	**110.10**
" " " with Secret Waste	**120.90**	**129.90**
If without End Piece, deduct	**5.00**	**5.00**

ENAMELED IRON LAVATORIES

IN BATTERIES

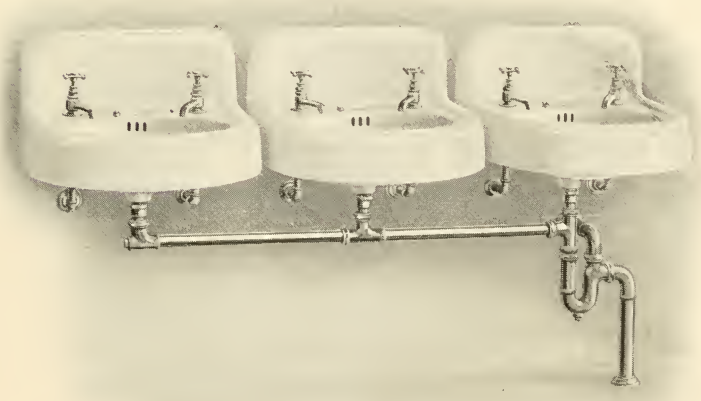


Plate E1731

Battery of Three Enameled Iron Lavatories, each Lavatory with Slab, Soap Depression, Rear Outlet Bowl, Back and Apron all in one piece, Concealed Wall Hangers, Nickel-plated Compression Faucets, Nickel-plated Supply Pipes to Wall, Nickel-plated Continuous Waste and "S" Trap, Plugs and Chain Stays.

Slab 17x19 inches	Back 6½ inches	Bowl 11x14 inches
Slab 18x21 inches	Back 8 inches	Bowl 11x14 inches.
Slab 19x24 inches	Back 10 inches	Bowl 12x15 inches

Sizes	17x19	18x21	19x24
Price, as described	78.85	81.85	96.10
" " " with Secret Waste	98.65	101.65	115.90

ENAMELED IRON LAVATORIES

IN BATTERIES

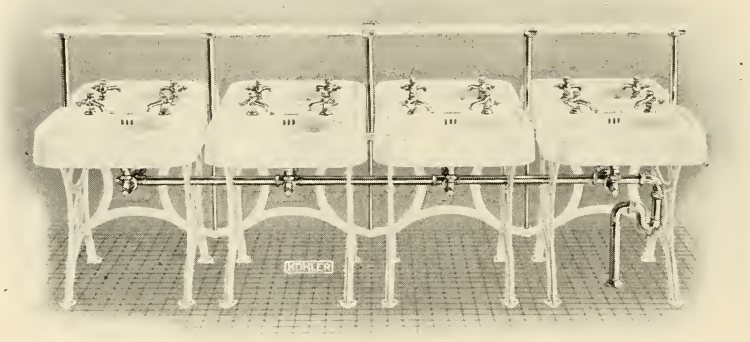


Plate E1741

Battery of Eight (Four Double Sections) Enameled Iron Square Lavatories, each Slab with D Pattern Basin with Rear Outlet, Patent Overflow and Apron all in one piece, Soap Dish Cast in Slab, Set on Painted Iron Brackets to Floor, Opaline Glass Towel Shelf on Nickel-plated Supports, Nickel-plated Self-closing Faucets with China Handles and China Indexes, 1½-inch Nickel-plated Continuous Waste, 1½-inch S Trap, Waste Plugs and Chain Stay Bolts.

Slabs 20x24 inches Basins 12x15 inches Aprons 5 inches

Price, as described	430.50
" without Faucets, Waste and Trap	278.00
" with Floor Brackets only	220.80
Add for Each Double Section, as described	103.20
" " " " " without Faucet, Waste and Trap	68.10
" " " " " with Floor Brackets only	55.20

Supply pipes extra.

PORCELAIN HOSPITAL LAVATORIES

Plate E1751

Porcelain Hospital Lavatory, Roll Rim all around with Oval Basin, Instrument Trays, Porcelain Legs and Wall Supports, Nickel-plated Brass Niedecken Mixer Supply Fixture for Elbow Control, Nickel-plated Brass Strainer and Coupling, 1½-inch Nickel-plated Cast Brass Plain "P" Trap.

Length Over All 36½ inches Width 24 inches Basin 13x17x6½ inches Apron 7½ inches

	Class A	Class B
Price, as described	78.25	62.80
" without Fittings	45.70	29.65

If without Trap, deduct 2.50

This Fixture can also be furnished with other styles of fittings if desired.

Prices on application.

PORCELAIN BARBERS' LAVATORIES

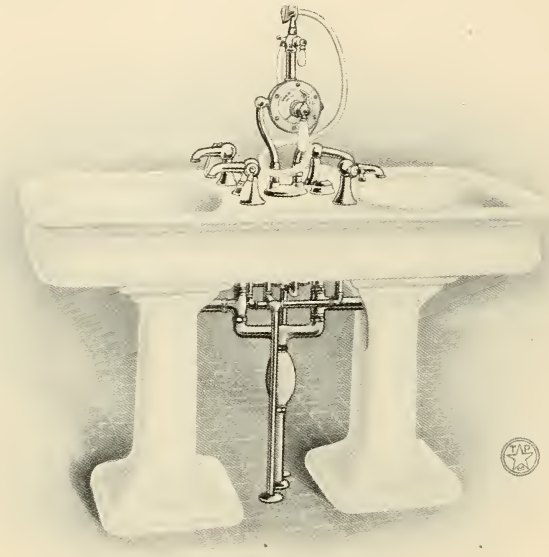


Plate E1761

Porcelain All Roll Rim Double Bowl Barber's Lavatory with Porcelain Pedestals, Nickel-plated Brass Fuller Faucets with China Handles and China Indexes, Nickel-plated Brass Combination Shampoo Fitting with Niedecken Mixer, Two Three-way Nickel-plated Brass Supply Pipes to Floor, Two "Ideal" Wastes with China Knobs and Double Waste Pipe with Nickel-plated Cast Brass Flask Trap.

Slab 24x48 inches Basins 13½x18½x6½ inches Apron 6½ inches

	Class A	Class B
Price, as described	154.45	125.45
" without Fittings	83.15	54.15

ENAMELED IRON BARBERS' LAVATORIES

Plate E1771

Enameled Iron Barbers' Lavatory, with Slab, D Pattern Basins with Rear Outlets and Apron all in one piece, Two Enameled Iron Round Pedestals, Nickel-plated Compression Faucets with China Indexed Cross Handles, Nickel-plated Compression Double Shampoo Cock with Hose and Spray, Combination Supply Pipes, Double Connection Bottle Trap and Chains and Stoppers.

Slab 26x46 inches Basins 14x18 inches

Price, as described,.....	150.60
" without Fittings,.....	82.00

ENAMELED IRON BARBERS' LAVATORIES

Plate E1781

Enameled Iron Two-Bowl Barber's Pedestal Lavatory with Slab, "D" Pattern Basins and Apron all in one piece, Nickel-plated Fuller Double Shampoo Cock, Sprinkler and Hose, and 1¼-inch Cast Brass Traps.

Slab 26½x42½ inches Basins 14x18 inches Height 32 inches Apron 5½ inches

Price, as described	69.00
" without Fittings	50.00

ENAMELED IRON BARBERS' LAVATORIES

Plate E1791

Enameled Iron Lavatory with Slab, D Pattern Basin with Rear Outlet and Apron all one piece, Enameled Pedestal, Nickel-plated Fuller Combination Basin and Shampoo Cock, with China Handles, Secret Waste and Overflow with China Knob, Nickel-plated Supply Pipes and Nickel-plated P Trap.

Slab 20x28 inches Basin 12x15 inches
Apron 4½ inches Apron 4½ inches
Slab 24x34 inches Basin 14x18 inches

Size.....inches	20x28	24x34
Price, as described, Enameled All Over.....	86.60	97.30
Price, without Fittings, Enameled All Over....	48.10	58.80

Enameled Iron Pedestal Lavatory with Square Slab, D Pattern Basin with Rear Outlet Patent Overflow and Apron all in one piece, Soap Dish Cast in Slab, Enameled Iron Pedestal, Nickel-plated Fuller Combination Basin and Shampoo Cock with Compression Base and China Indexed Handles, Nickel-plated Supply Pipes, Nickel-plated P Trap, Waste Plug Chain and Chain Stay.

Slab 20x24 inches Basin 12x15 inches
Apron 5 inches

Slab 22x27 inches Basin 14x18 inches
Apron 5 inches

Size .....inches	20x24	22x27
Price, as described, Enameled All Over	65.20	70.20
Price, without Fittings, Enameled All Over	32.80	37.80

Plate E1792

PORCELAIN COMBINATION LAVATORIES AND DRESSING TABLES

Plate E1801

Solid Porcelain Fancy Front Combination Lavatory and Dressing Table with Porcelain Legs, Wall Supports, Nickel-plated Heavy Fuller Faucets with China Handles and China Indexes, Nickel-plated Full Iron Pipe Size Supply Pipes to Wall, Nickel-plated Standing Overflow and Waste with China Knob, and 1¼-inch Nickel-plated "P" Trap.

Length Over All 52 inches Width 24 inches Basin 14x20 inches Apron 6¾ inches

Price, as described, Class A	84.50
" without Fittings, Class A	73.10
" as described, Class B	57.95
" without Fittings, Class B	46.55
If with Wheel Handle Stop Valves on Supplies, add	2.50

PORCELAIN DRESSING TABLES, ETC.

Plate E1811

Porcelain Dressing Table and Pedestal, Glazed White with Concealed Iron Connecting Rod, Bolts and Washers.

Table 16x26 inches Height 30½ inches

Price, as described, Class A 20.85
" " " " B 14.60

For use in private bath room. This table is highly valuable for holding rings, combs, brushes, etc., during the bath.

PORCELAIN FOOT STOOLS

ROUND

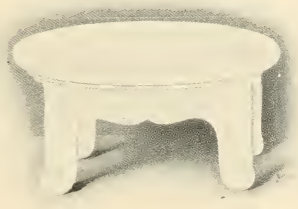


Plate E1812

SQUARE

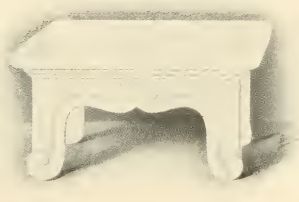


Plate E1813

Porcelain Foot Stools Glazed White, Each Leg Fitted with Rubber Bumper.

Round 19½x12 inches Height 11 inches
Square 23x15 inches Height 11 inches

Price, Round or Square, Class A 11.50
" " " " " B 8.75

VITREOUS CHINA DENTAL LAVATORIES

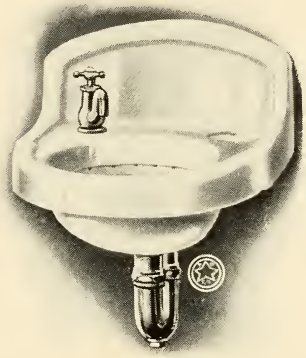


Plate E1821

Plate E1822

PLATE E1821

Vitreous China Dental Lavatory with Integral Back, Flushing Rim, Apron and Oval Basin, Wall Supports, Nickel-plated Compression Gooseneck Faucet with China Index, Supply Pipe and Nickel-plated Plain "P" Trap.

Width 12 inches Front to Back 11 inches Basin 5½x7x4 inches Back 5 inches

Price, as described 14.75
If without Supply Pipe, deduct ..... .80

The Gooseneck Faucet feeds the Basin and the Flushing Rim and is especially made for this fixture.

PLATE E1822

Vitreous China Dental Lavatory with Integral Back and China Spout and Full Splash Rim, Wall Supports, Nickel-plated Combination Self-Closing Dental Faucet and Flushing Valve, Nickel-plated Supply Pipe to Wall and Nickel-plated Plain "P" Trap.

Width 10 inches Front to Back 12 inches Basin 6½ inches Back 2 inches

Price, as described 21.00

EARTHENWARE BASINS

ROUND, PATENT OVERFLOW
METAL PLUG

Plate E1831

ROUND, PATENT OVERFLOW
RUBBER PLUG

Plate E1832

Outside Diameter.....inches	12	13	14	15	16
Price, Patent Overflow for Metal Plug	1.25	1.25	1.25	2.00	2.50
" " " " Rubber Plug.....	1.50	1.50	1.50	2.50	3.00
" no Overflow for Metal Plug.....	1.00	1.00	1.00	1.50	2.00

OVAL, NO OVERFLOW
METAL PLUG

Plate E1833

OVAL, PATENT OVERFLOW
METAL PLUG

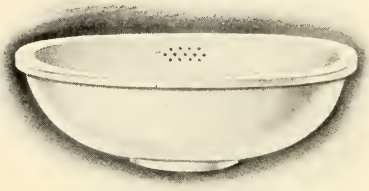


Plate E1834

Outside Dimensions.....inches	14x17	15x19	16x21
Price, no Overflow for Metal Plug	2.50	3.50	4.50
" Patent Overflow for Metal Plug.....	3.00	4.00	5.00

OVAL, PATENT OVERFLOW
RUBBER PLUG

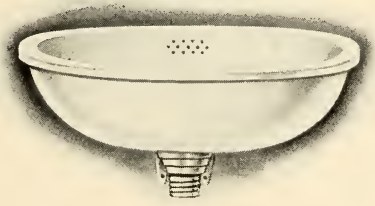


Plate E1835

STRAIGHT BACK, NO OVERFLOW

Plate E1836

Outside Dimensions.....	14x17	15x19	16x21
Price, Patent Overflow for Rubber Plug	3.50	4.50	5.50
" Straight Back, Patent Overflow.....	5.00	6.00	....
" " " no Overflow.....	4.50	5.50	....

BATH ROOM FURNISHINGS

STEEL MEDICINE CABINETS

The offering of these steel cabinets or bath room lockers is in line with the popular tendency to adapt fireproof and sanitary materials to the construction of household appliances. They are made of soft, smooth annealed steel, pressed and formed into shape, and coated inside and out with a snow-white enamel. The enamel is subjected to four bakings in gas-heated ovens, and never cracks or peels, and is easily kept clean with soap and water. The door is furnished with a beveled edge plate glass mirror, or plain if preferred, or with plain white doors. If especially ordered they may be furnished also with clear plate glass doors. The shelves are adjustable and may be placed at different heights. Hinges and handles are solid bronze, polished and nickel-plated.

STYLE G

Plate E1841

STYLE H

Plate E1842

STYLE G, WITH OPEN SHELF BELOW

No.	Outside Dimensions Inches	Inside Dimensions Inches	Size of Mirror Inches	Price, with Enam. Shelves Each	Add for Plate Glass Shelves, Each	Deduct for Plain White Door, Each
40	21½x32	20½x23	14x18	35.00	4.60	4.00
41	23½x34	22½x25	16x20	42.00	5.60	6.50

STYLE H, WITHOUT OPEN SHELF BELOW

50	21½x24½	20½x23	14x18	29.00	4.60	4.00
51	23½x26½	22½x25	16x20	35.00	5.60	6.50

All lockers listed are right-hand; left-hand, 50 cents extra. Extra for lock and key, 50 cents.

Lockers with outside veneer imitating various woods, furnished at small extra charge.

BATH ROOM FURNISHINGS

STEEL MEDICINE CABINETS

STYLE E

Plate E1851

STYLE F

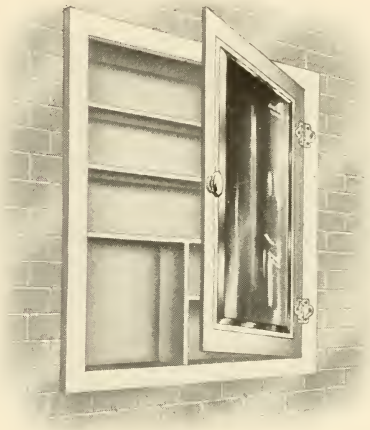


Plate E1852

These cabinets are made of smooth annealed steel and enameled snow white inside and outside. Doors have beveled plate glass mirrors.

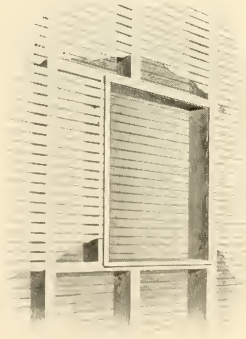
STYLE E, TO RECESS IN WALL, WITH OPEN SHELF BELOW

No.	Outside Dimensions Inches	Inside Dimensions Inches	Size of Mirror Inches	Framed Opening Required Inches	Price, with Enameled Shelves Each	Add for Plate Glass Shelves Each	Deduct for Plain White Door Each
20	21½x33½	18¾x21	14x18	19x30x4¼	29.00	4.60	4.00
21	23½x35½	20¾x23	16x20	21x32x4¼	34.00	5.60	6.50
22	25½x37½	22¾x25	18x22	23x34x4¼	39.00	6.00	8.00
23	27½x39½	24¾x27	20x24	25x36x4¼	44.00	6.80	10.00

STYLE F, TO RECESS IN WALL, WITHOUT OPEN SHELF BELOW

30	21½x25½	18¾x21	14x18	19x22x4¼	25 00	4.60	4.00
31	23½x27½	20¾x23	16x20	21x24x4¼	30.00	5.60	6.50
32	25½x29½	22¾x25	18x22	23x26x4¼	34.00	6.00	8.00
33	27½x31½	24¾x27	20x24	25x28x4¼	39.00	6.80	10.00

In providing the recess for these cabinets care must be taken that the frame is square and of proper size. Three-quarter-inch wide grounds are required and the plaster must come up flush and smooth to them. The top of the opening is 6 feet 2 inches from floor, which will bring the mirror in proper position for the average adult. They require a depth of 4¼ inches from face of the plastered wall to the back of the recess, and they project 1¼ inches from the wall.



All locks listed are right-hand; left-hand lockers, 50 cents extra.

Lock and key, 50 cents extra.

BATH ROOM FURNISHINGS

MEDICINE CABINETS

Plate E1861

Plate E1862

Plate E1861-White Enameled Wall Cabinet with Three Plate Glass Shelves, Nickel-plated Brass Frame Door with Beveled French Mirror and Nickel-plated Trimmings. Size outside, 24⅝x16⅝x5¼ inches.

Price	each	20.00

Plate E1862-White Recess Cabinet with Three Plate Glass Shelves, Beveled French Mirror in Door and Nickel-plated Trimmings. To fit recess 23x17x4⅝ inches.

Price, White Enameled	each	13.00	Price, Cello	each	20.00

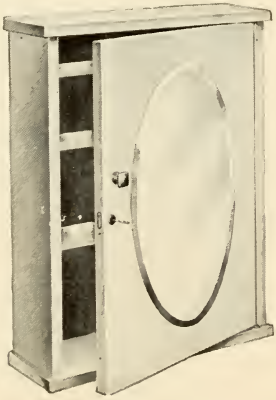


Plate E1863

Plate E1864

Plate E1863-White Wall Cabinet with Three Plate Glass Shelves, Beveled French Mirror in Door and Nickel-plated Trimmings.

Size, Outside	inches	19x15¾x5¾	23x17¾x5¾	25x19¾x5¾
Price, White Enameled	each	10.00	12.00	15.00
" Cello	"	15.50	18.00	24.00

Plate E1864-White Corner with Three Plate Glass Shelves, Beveled French Mirror in Door and Nickel-plated Trimmings. Size, 14 inches on each Wall, 23 inches high.

Price, White Enameled	each	15.00	Price, Cello	each	20.00

BATH ROOM FURNISHINGS

MIRRORS

Beveled French Plate Glass—White Enameled Wood Frame

OVAL

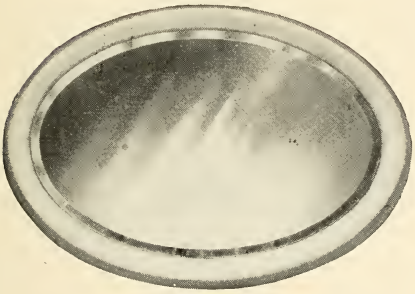


Plate E1871

OBLONG

Plate E1872

OVAL

Size.....inches	16x24	18x30	20x30	22x33	24x30	28x36
Width of Frame.....inches	1½	1½	2	2	2	2
Price.....each	7.25	9.00	11.50	16.00	12.75	23.00

OBLONG

Size.....inches	16x24	18x30	20x30
Width of Frame.....inches	1½	1½	1½
Price.....each	7.25	9.00	11.50

Frames covered with "Cello," prices upon application.

ROUND

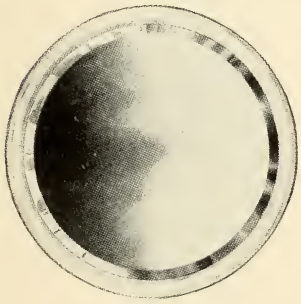


Plate E1873

OBLONG, NICKEL-PLATED FRAME

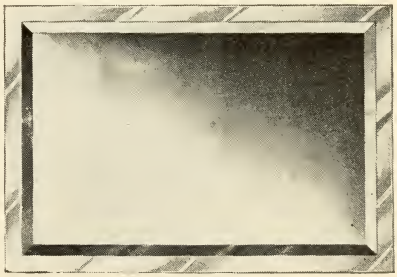


Plate E1874

ROUND

Size.....inches	18	22
Price, with 1½-inch White Enameled Wood Frame.....each	7.00	10.00
" " 1 " Nickel-plated Brass " ..... "	9.00	12.00

Frames covered with "Cello," prices upon application.

OBLONG, NICKEL-PLATED BRASS FRAME

Size.....inches	12x18	14x20	16x20	16x24	18x24	18x30	18x36	20x30	22x33	24x30
Price, ½-inch Frame..each	5.00	6.25	6.75	8.00	....	....	....	....	....	....
" ⅝ " " .. "	....	....	....	....	10.00	12.00	14.00	12.75	17.75	14.00

BATH ROOM FURNISHINGS

MIRRORS

Beveled French Plate Glass—$\frac{5}{16}$-inch Nickel-plated Frame

OVAL

Plate E1881

OBLONG

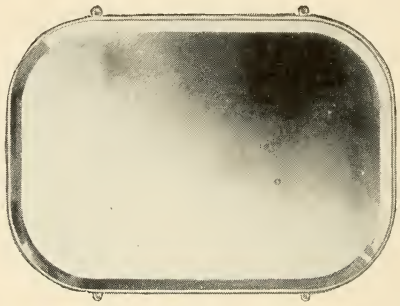


Plate E1882

Size ..... inches	10x14	12x22	14x20	16x20	16x24	20x28
Price, Oval ..... each	4.00	5.00	5.00	6.00	7.00	10.00
" Oblong ..... "	....	....	5.00	....	7.00	10.00

ROUND

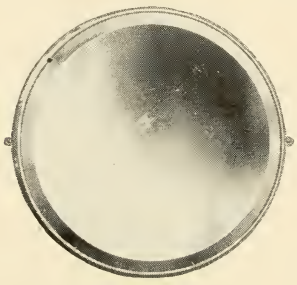


Plate E1883

OBLONG, ADJUSTABLE

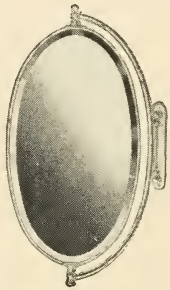


Plate E1884

ROUND

Size ..... inches	10	12	18	22
Price ..... each	2.25	3.00	5.50	9.00

OBLONG, ADJUSTABLE

Size ..... inches	10x14	12x22
Price ..... each	6.00	7.00

ROUND, ADJUSTABLE

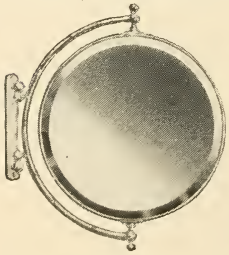


Plate E1885

ROUND, ADJUSTABLE

Size ..... inches	12
Price ..... each	5 00

UNIVERSAL BRACKET

Size ..... inches	10	12	10x14
Price ..... each	3.25	4.00	5.00

UNIVERSAL BRACKET

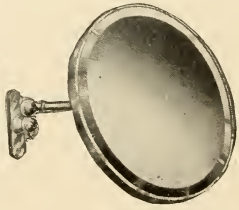


Plate E1886

BATH ROOM FURNISHINGS

TRADE ALL WHITE RIGHT MARK

TOWEL BARS

1-INCH OPAL BAR, ROUND POSTS
WHITE VITREOUS CHINA ENDS
No. 325

Plate E1891

Diameter of Bracket on Back, 3½ inches; Extreme Depth, 4 inches.

Length..... inches	18	24	30	36
Price.....each	**2.85**	**3.60**	**4.25**	**5.10**

¾-INCH OPAL BAR, ROUND POSTS
WHITE VITREOUS CHINA ENDS
No. 317

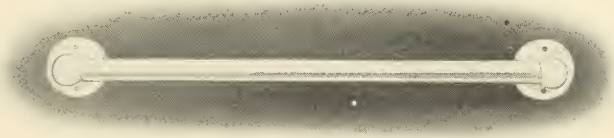


Plate E1892

Size of Bracket, 1x3 inches; Extreme Depth, 3 inches.

Length..... inches	18	24	30	36
Price.....each	**1.70**	**2.20**	**2.45**	**2.90**

½-INCH OPAL BAR, ROUND POSTS
WHITE VITREOUS CHINA ENDS
No. 307

Plate E1893

Size of Bracket, ¾x3 inches; Extreme Depth, 2½ inches.

Length..... inches	18
Price.....each	**.90**

These furnishings are far superior to nickel-plated brass, as there is no metal to tarnish, are easy to keep clean and are attractive in appearance.

BATH ROOM FURNISHINGS

TRADE ALL WHITE RIGHT MARK

No. 425 HAND RAILS

1¼-INCH OPAL BAR, WHITE VITREOUS CHINA ENDS

Plate E1901

Diameter of Bracket, 3½ inches; Extreme Depth, 4 inches.

Length	inches	9	12	16
Price	each	2.85	3.60	4.35

No. 335 SHELVES

WHITE OPAL SHELF, 6 INCHES WIDE, ¼ INCH THICK
WHITE VITREOUS CHINA BRACKETS

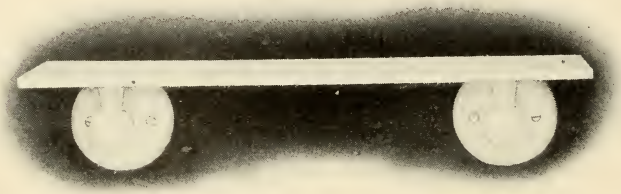


Plate E1902

Diameter of Bracket, 3½ inches; Extreme Depth, 3½ inches.

Length	inches	18	24	30	36
Price	each	4.10	5.10	5.80	6.60

No. 435 WHITE OPAL SHELF, 5 INCHES WIDE, ¼ INCH THICK
WHITE CHINA BRACKETS

Plate E1903

Diameter of Bracket, 3½ inches; Extreme Depth, 3½ inches.

Length	inches	12
Price	each	2.25

These furnishings are far superior to nickel-plated brass, as there is no metal to tarnish, are easy to keep clean and are attractive in appearance.

BATH ROOM FURNISHINGS

TRADE ALL WHITE RIGHT MARK

WHITE VITREOUS CHINA

No. 345 TUMBLER HOLDER

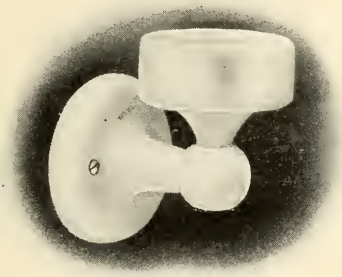


Plate E1911

No. 355 TUMBLER AND TOOTH BRUSH HOLDER

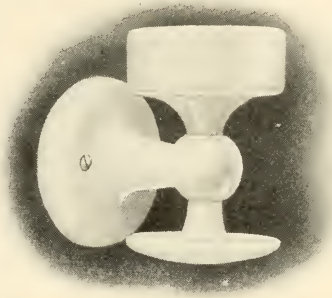


Plate E1912

Nos. 345, 355, Diam. of Bracket, 3½ inches; Extreme Depth, 4½ inches; Extreme Height, 4½ inches.

Price, Tumbler Holders ..... each 1.20
" " and Tooth Brush Holders ..... " 1.50

No. 365 SOAP DISH

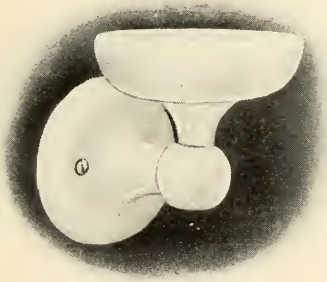


Plate E1913

No. 375 PAPER HOLDER

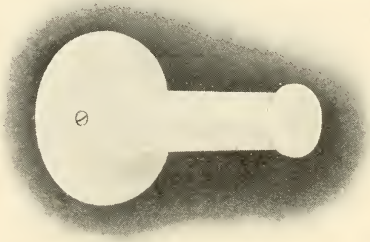


Plate E1914

No. 365, Diameter of Bracket, 3½ inches; Height, 4¾ inches; Size of Cup, 5x3½ inches.
No. 375 Diam. of Bracket, 3½ in. Extreme Depth, 6 in. Holds Standard Roll of Paper 500 or 1000 Sheets.

Price, Soap Dishes..... each 1.25 Price, Paper Holders..... each .90

Furnished in straight pattern or bell top.

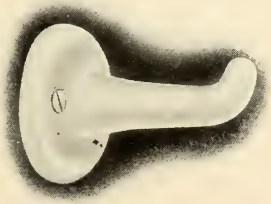


Plate E1915

No. 385 ROBE HOOKS

Diameter of Bracket, 2½ inches;
Extreme Depth, 3½ inches

Price..... each .50

No. 445
VITREOUS CHINA TUMBLER

Diameter at Top, 2¾ inches
Diameter at Bottom, 2½ inches
Height, 4 inches

Price..... .....each .50

Plate E1916

BATH ROOM FURNISHINGS

TRADE ALL WHITE RIGHT MARK

WHITE VITREOUS CHINA

No. 367 SOAP OR SPONGE DISH

Plate E1921

No. 357 INVERTED TUMBLER AND TOOTH BRUSH HOLDER

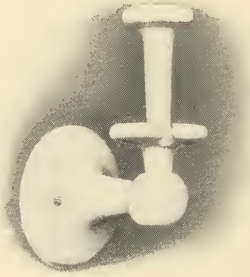


Plate E1922

Nos. 367, 357, Diameter of Bracket, 3½ inches; Extreme Depth, 4½ inches.

Price, Soap or Sponge Dish, Cup 3¾x5½ inches, Depth, 1½ inches.....each **1.60**
" Inverted Tumbler and Tooth Brush Holder (for Four Brushes) ..... " **1.55**

No. 337 COMBINATION SHELF

Plate E1923

Diameter of Bracket, 3½ inches; Extreme Depth, 3½ inches.

Length.....inches	18	24
Price, White Opal Shelf, 6x3⅜ inches with Vitreous China Brackets, ¾-inch Opal Towel Bar, Tumbler and Soap Holders.....each	**6.50**	**7.40**

No. 341 COMBINATION SHELF

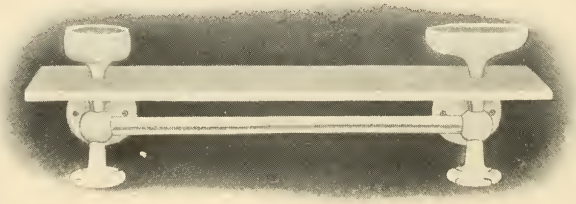


Plate E1924

Diameter of Bracket, 3½ inches; Extreme Depth, 3½ inches.

Length.....inches	18	24
Price, White Opal Shelf, 6x3⅜ inches Vitreous China Brackets, ¾-inch Opal Towel Bar, Tumbler, Soap Holder and Tooth Brush Holder..each	**7.30**	**8.20**

These combinations are especially adapted to small bath rooms. Packed one in a box.

BATH ROOM FURNISHINGS

TOWEL BARS

1-INCH CRYSTAL BAR AND 2¼-INCH CRYSTAL BALLS

No. 3524

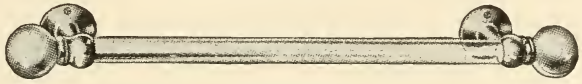


Plate E 1931

Length ..... inches	18	24	30	36
Price, Nickel-plated ..... each	3.20	3.50	3.80	4.10
" White Searloid ..... "	4.00	4.40	4.80	5.20

WITH CRYSTAL BAR No. 3515

¾-INCH BAR

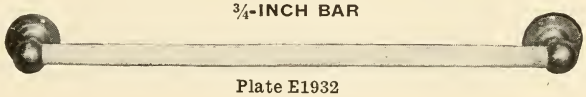


Plate E1932

Length ..... inches	18	24	30	36
Price, Nickel-plated ..... each	1.50	1.70	1.90	2.10
" White Searloid ..... "	1.90	2.10	2.30	2.50

NICKEL-PLATED OR WHITE SEARLOID BAR No. 3502

½-INCH BAR

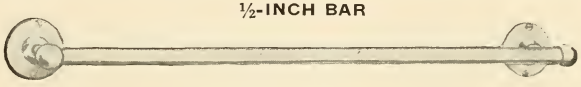


Plate E1933

Length ..... inches	15	18	21	24	30	36
Price, Nickel-plated ..... each	.90	1.00	1.10	1.20	1.30	1.40
" White Searloid ..... "	1.20	1.30	1.40	1.60	1.70	1.80

1-INCH BAR FOR ROLLER TOWEL No. 3514

Plate E1934

Length ..... inches	18
Price, Nickel-plated ..... each	1.60
" White Searloid ..... "	2.10

BATHROOM FURNISHINGS

TOWEL BARS

½-INCH BAR WITH HOOKS, No. 3572

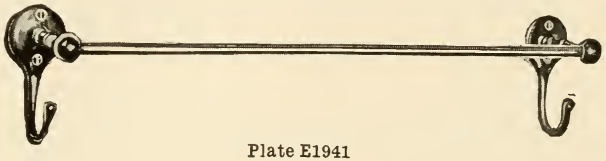


Plate E1941

Length	inches	21
Price, Nickel-plated	each	1.60
" White Searloid	"	2.00

½-INCH BAR, No. 3505

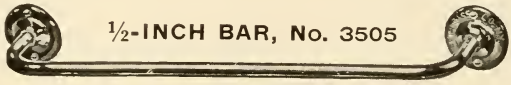


Plate E1942

Length	inches	15	18	21	24	30	36
Price, Nickel-plated	each	.50	.60	.70	.80	.90	1.00
" White Searloid	"	.70	.80	.90	1.00	1.10	1.20

¼-INCH BARS, No. 3571

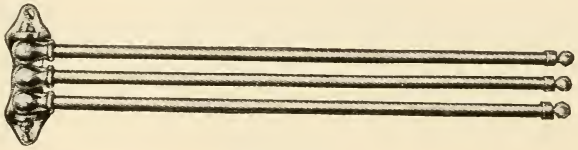


Plate E1943

Length	inches	12
Price, No. 3570, 3 Bars, 3x7/8-inch Wall Plate, Nickel-plated	each	.75
" " 3571, 2 " 3x7/8 " " " "	"	.60
" " 3570, 3 " 3x7/8 " " " White Searloid	"	1.00
" " 3571, 2 " 3x7/8 " " " " "	"	.80

5/16-INCH BARS

2 BARS, No. 3501A

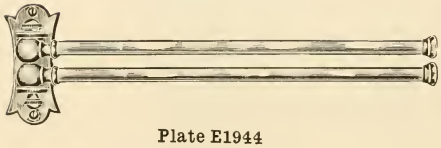


Plate E1944

3 BARS, No. 3501

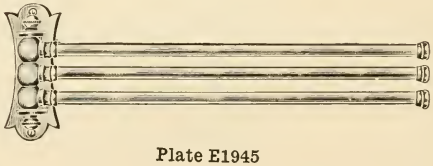


Plate E1945

Length	inches	14
Price, No. 3501A, 2 Bars, 4x1-inch Wall Plate, Nickel-plated	each	1.30
" No. 3501, 3 " 5x1 " " " "	"	1.60
" No. 3501A, 2 " White Searloid	"	1.70
" No. 3501, 3 " " "	"	2.10

BATHROOM FURNISHINGS

GLASS SHELF WITH GUARD RAIL No. 3863

Plate E1951

The railing can be raised to facilitate cleaning of the shelf.

Size	inches	5x24	5x27
Price, Nickel-plated	each	4.50	4.65
" White Searloid	"	5.70	5.90

GLASS SHELF WITH TOWEL BAR No. 3612

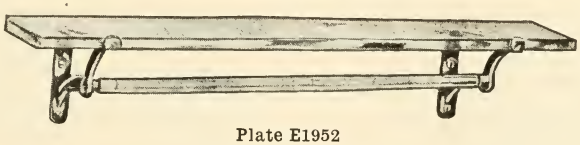


Plate E1952

Size	inches	5x27	5x33
Price, with Glass Bar	each	6.10	6.85
" " Nickel-plated Bar	"	6.00	6.75
" White Searloid	"	7.50	8.50

OPAL SHELF No. 3745

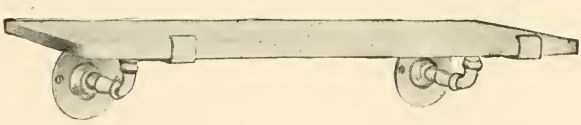


Plate E1953

Size	inches	5x24	5x27
Price, Nickel-plated	each	3.50	3.65
" White Searloid	"	4.40	4.60

CRYSTAL GLASS SHELF No. 3744

Plate E1954

Size	inches	5x18	5x24	5x27
Price, Nickel-plated	each	2.50	2.75	2.90
" White Searloid	"	3.20	3.50	3.70

BATHROOM FURNISHINGS

SOAP DISHES

No. 3718

Plate E1961

No. 3721

Plate E1962

No. 3696

Plate E1963

		Nickel-plated	White Searloid
Price, No. 3718, 6x4 inches	each	.90	1.20
" " 3721, 5½x4-inch China Tray	"	1.70	2.10
" " 3696, 6x4 inches	"	.75	1.00

No. 3582

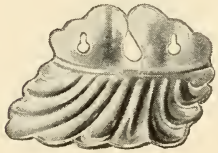


Plate E1964

No. 3950

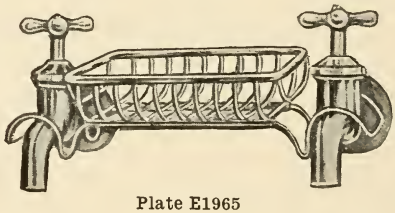


Plate E1965

		Nickel-plated	White Searloid
Price, No. 3582, 4x3 inches	each	.35	.50
" " 3950, 6x4¼ " for Faucets up to 10 inches apart	"	1.00	1.25

TOOTH BRUSH AND TUMBLER HOLDERS

No. 3544

Plate E1966

TOOTH BRUSH HOLDERS
No. 3566

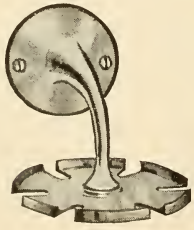


Plate E1967

No. 3618

Plate E1968

TUMBLER HOLDER
No. 3624

Plate E1969

		Nickel-plated	White Searloid
Price, No. 3544, Tooth Brush Holders	each	1.00	1.25
" " 3566, " " "	"	1.60	2.00
" " 3618, " " " with Tumbler	"	.65	.90
" " 3624, Tumbler Holders, 2 inches deep, with Tumbler	"	.80	1.00

BATH ROOM FURNISHINGS

SOAP AND SPONGE HOLDERS

No. 3592

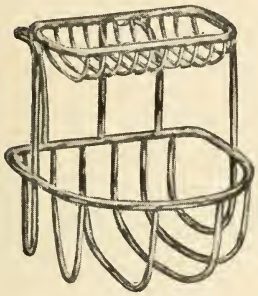


Plate E1971

No. 3591

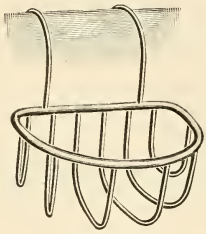


Plate E1972

No. 3553

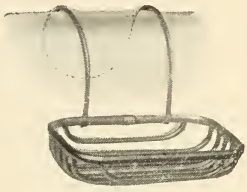


Plate E1973

		Nickel-plated	White Scarloid
Price, No. 3592	each	2.40	3.20
" " 3591	"	1.30	1.75
" " 3553	"	.95	1.25

BRUSH AND COMB TRAY
No. 3595

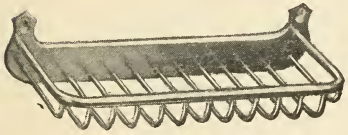


Plate E1974

MEDICINE AND TOILET BOTTLE HOLDER No. 3046

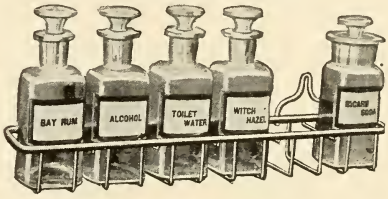


Plate E1975

		Nickel-plated	White Scarloid
Price, No. 3595, Comb and Brush Tray, 9¼x3¾ inches	each	1.40	1.85
" " 3044, Four Bottle Holder, with Bottles	"	2.00	2.50
" " 3046, Six " " " "	"	2.70	3.40
" " 3048, Eight " " " "	"	3.40	4.30
Price, Extra 4-ounce Bottles with Stock Names	each	.20	

SOAP AND TUMBLER HOLDER
No. 3606

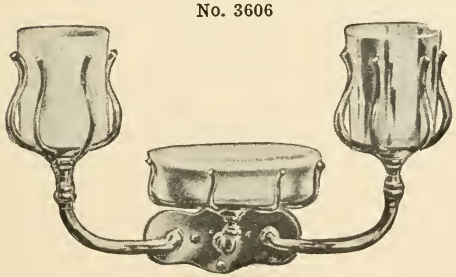


Plate E1976

SOAP DISH No. 3620

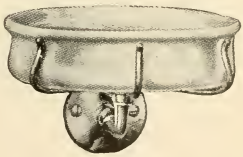


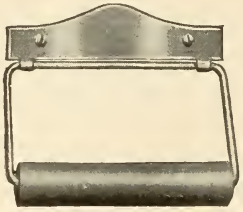
Plate E1977

		Nickel-plated	White Scarloid
Price, No. 3606	each	4.30	5.40
" " 3620 with 5¼x3¾ inch China Tray	"	1.50	1.90

BATHROOM FURNISHINGS

TOILET PAPER HOLDERS

No. 3574



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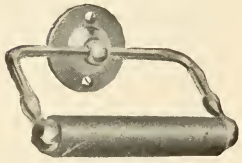
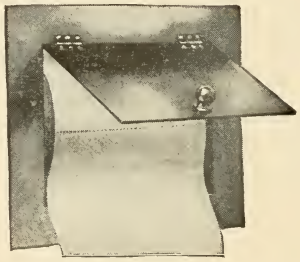


No. 3761

Plate E1981 Plate E1982 Plate E1983

			Nickel-plated	White Searloid
Price, No. 3830	.....	each	.70	.90
" " 3574	.....	"	.30	.40
" " 3761	.....	"	1.00	1.25

No. 3677



No. 3764

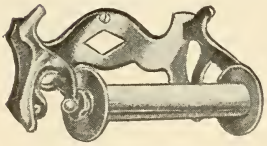


Plate E1984 Plate E1985

			Nickel-plated	White Searloid
Price, No. 3764	.....	each	1.50	1.90
" " 3677	.....	"	7.00	8.75

ROBE HOOKS

No. 3533

No. 3534

Plate E1986 Plate E1987

			Nickel-plated	White Searloid
Price, No. 3533	.....	each	.45	.60
" " 3534	.....	"	.22	.35

LIQUID SOAP DISPENSERS

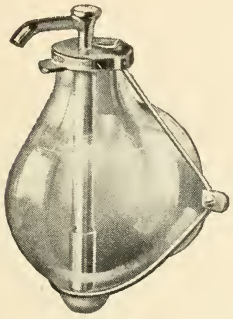


Plate E1991

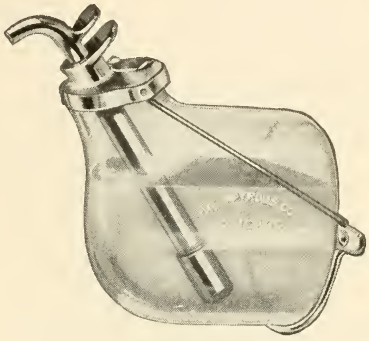


Plate E1992

Plate E1991—Fastens directly to wall or other support. A flexible wire forms a strong and most rigid means of fastening. Fills through opening in top, having a hinged cover. All threaded joints and cement eliminated.

Price.....each 6.00

Plate E1992—Similar to Style M, with the popular thumb and finger operating movement. This fixture eliminates the key lock arrangement, is self contained and has no loose parts.

Price.....each 5.00

Plate E1993

Has concealed container and a minimum of exposed metal parts. Soap is delivered by pressing the push button at top. A slight movement delivers a fixed quantity into the hand without drip or waste. Fills through the top by removing push button cap.

Price.....each 4.00

LIQUID SOAP

1-gallon Cans	per can	4.00
5 " "	per gallon	3.00
10 " "	"	2.50
Barrel Lots	"	2.00

BATH ROOM FURNISHINGS

BATH STOOLS

No. 1

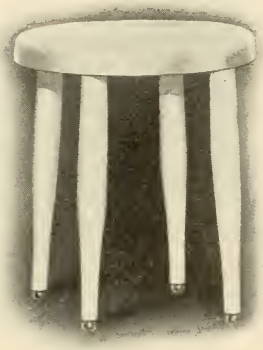


Plate E2001

No. 2

Plate E2002

The ivory white finish on these stools is a polished white waterproof coating of celluloid, a finish non-porous, permanent and durable. Will not change color, chip or peel off, cleansed with soap and water.

The white enamel is the next grade to ivory white, a smooth, high luster, waterproof polished surface.

Height 14½ inches Diameter 12 inches

	No. 1	No. 2
Price, White Enamel	5.00	6.50
" " Ivory Finish	10.00	12.00

BATH SEAT

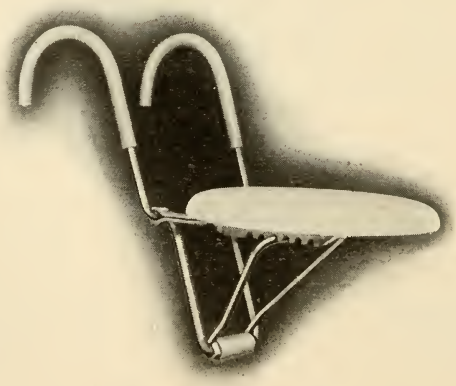


Plate E2003

This seat is folding and adjustable. It hangs on the end of the tub and when not in use, folds flat against the tub. Finished in white enamel.

Price..... 3.50

BATH ROOM FURNISHINGS

BATH SEAT AND HEAD REST

Plate E2011

Price, with Canvas Strap and Nickel-plated Clamps .....each 2.85

WHITE ENAMELED BATH SEAT

Plate E2012

Price, White Enameled, Nickel-plated Supports with Rubber Covered Ends. .each 2.60
Adjustable to all roll rim tubs.

OAK BATH SEAT

Plate E2013

Price, Oak with Nickel-plated Supports with Rubber Covered Ends.....each 1.90
" White Enameled..... " 2.60
Adjustable to all flat, round or oval rim tubs.

BATH ROOM SCALES

WITH FULL CAPACITY BEAM

The value of closely noting and following the continual changes in personal weight is to-day universally recognized by physicians, physical culturists and everyone interested in attaining and maintaining health. Every change in weight is the result of some physical condition —it may show the desired effects of beneficial treatment; it may point out the necessity for new or different treatment.

The Fairbanks personal scale here shown, placed in bathroom or bedroom offers every family the advantage of obtaining personal weight without clothes as frequently, as desired. It is convenient and easy to use, takes up but a small space, and is handsomely finished to ornament any home. Above all, its fine accuracy and sensitiveness give weights that can be absolutely relied upon to be authentic.

The tall iron pillar is surmounted by a full capacity beam on a level with the user's eye and free from shadow, so as to be easily read. This beam has the full 300 x ¼ pounds capacity upon its bars, doing away with loose weights which may drop and break or injure floor or toes. The scale may be furnished with an accurate, adjustable measuring rod for giving personal height, graduated from 4 feet to 7 feet by ¼ inch or at additional price with measuring rod graduated from 2 feet 6 inches to 6 feet 6 inches by ¼ inch for children as well as adults. Beam and measuring rod may be graduated to metric or other standards, if desired. The finish is in elegant white enamel, with arrow-tip beam, sliding poises and measuring rod, all of polished nickel-plated brass. Rubber mat for platform may be furnished at an additional price.

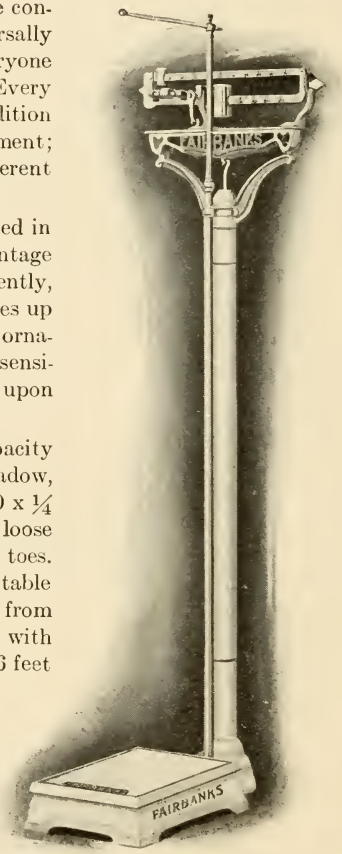


Plate E2021

Capacity: 300x¼ pounds.
Beam Graduations: Upper bar, 50 x ¼ pounds; lower bar 250 x 50 pounds.
Measuring Rod: 4 feet to 7 feet by ¼ inch.
Height: Floor to tip of beam 58½ inches.
Platform: 10½ x 14½ inches.

Price, with Measuring Rod	each	31.00
" without " "	"	23.00

CLEANERS, CEMENTS, ETC.

SANI-FLUSH

Plate E2031

DESOLVO

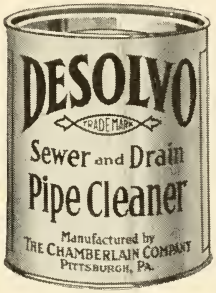


Plate E2032

SUPERIOR CLEANSER

Plate E2033

SANI-FLUSH

Cleans the entire closet bowl—the seen and the unseen parts. It keeps the bowl white as new, sanitary and odorless. Shake into the closet bowl and leave for several hours, and it dissolves the incrustations in the trap, so that it washes out when closet is flushed. Cannot injure the bowl or connections.

Price, 24-ounce Can, Net Weight ..... .25

DESOLVO

Cleans clogged pipes. It is a combination of mineral elements, so intermingled that upon its mixture with water, a chemical reaction takes place, generating intense heat and powerful gases. When poured into an obstructed sewer pipe will disintegrate and liquify the obstruction. Contains no acids and will not injure plumbing fixtures or connections.

Price ..... per can .75

KOHLER SUPERIOR CLEANSER

Will remove dirt, grease, rust stains, etc., from enameled iron ware without any injurious effects and does not destroy the luster of fixtures. Sift a small quantity on a damp cloth and apply to enameled surface.

Price, ½-lb. Cans, 2 dozen per Case 4.80

BLUE SEAL DRAIN PIPE SOLVENT

Removes stoppages in drains, bath tubs, kitchen sinks, slop sinks, urinals and water closets.

Destroys accumulations of lint, cloth, hair, grease, vegetable matter. Will not affect wood, glass or metal. Put up in 2-pound cans.

Price ..... per can 1.00

LIQUID TILING

A substitute for tiles and enamel. It covers with a white finish and when thoroughly dry presents a hard wearing surface which retains its gloss indefinitely. Withstands frequent washings and withstands external moisture and condensation. Made in three grades. Prices on application.

IRON FILLER CEMENT

An excellent cement for repairing leaks and breaks in castings, tanks, boilers, etc. Put up in 1-lb., 5-lb. and 10-lb. cans. Prices, net.

CLOSET BRUSHES

Plate E2034

Brush part, 3½ inches diameter, 6½ inches long. Made with straight or curved handle. Length over all, 30 inches.

Price, Straight Handle ..... per dozen 5.00
" Curved " ..... " 6.00

PORCELAIN SURGEONS' COMBINATION SINK AND LAVATORY

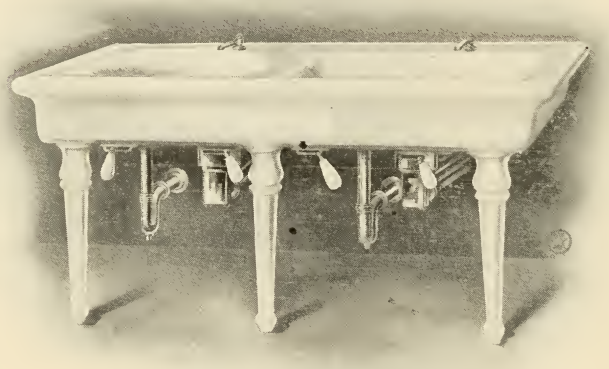


Plate E2041

Porcelain Surgeons' Combination Sink and Lavatory with Porcelain Legs and Wall Braces, Two Nickel-plated Brass Knee Operating Valves with China Holders for Hot and Cold Water, ½-inch Nickel-plated Iron Pipe Size Supply Pipes to Wall with Stop Valves, Nickel-plated Brass Low Down Supply Spouts, two Nickel-plated Brass Knee Action Wastes with China Handles, Nickel-plated Brass Plain "P" Traps.

Length, 59 inches. Width, 25 inches.
Lavatory Bowl, 12x20x6 inches. Sink, 12x25 inches. Apron, 6 inches.

	Class A	Class B
Price, as described	196.95	166.25
" without Fittings	86.85	56.15
If Traps are Vented, add	2.10	

This Fixture can also be furnished with other styles of fixtures if desired.

Prices on application.

VITREOUS CHINA SURGEON'S SINKS

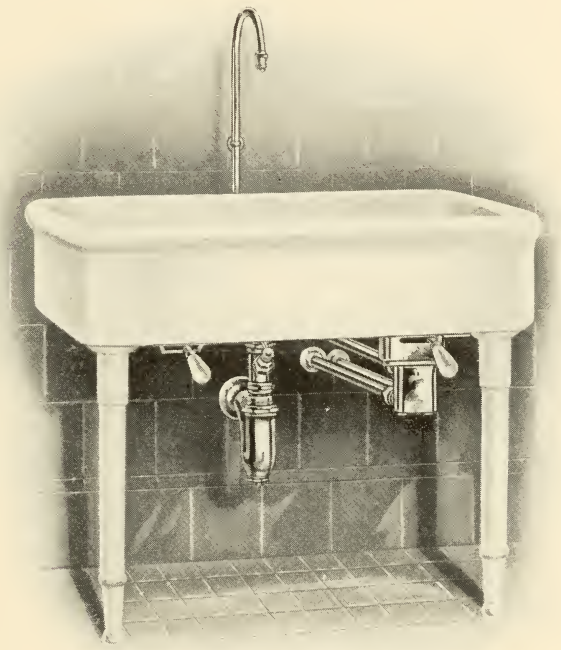


Plate E2051

Vitreous China All Roll Rim Surgeon's Sink with White Painted Iron Legs and Wall Supports, Nickel-plated Knee-action Supply Valves with Supply Pipes, Nickel-plated Gooseneck Spout, Nickel-plated Knee-action Waste and 2-inch Trap to Wall.

Depth Inside 7½ inches

Size.....inches	17x24	20x30	23x36	24x42	24x48
Price, Vitreous, as described.....	73.80	79.85	84.00	91.50	98.40
" without Fittings.....	17.75	25.00	30.00	39.00	47.25
" Vitreous Sink less Legs	14.75	22.00	27.00	36.00	44.25
" Porcelain " only, Class A.....	10.00	15.00	18.35	24.20	30.00
" " " " " B.....	7.00	10.50	12.85	16.95	21.00
" Painted Legs.....per pair	3.00	3.00	3.00	3.00	3.00

VITREOUS CHINA AND PORCELAIN HOSPITAL SINKS

Plate E2061

Porcelain All Roll Rim Hospital Sink with Vitreous China Legs and Wall Supports, Nickel-plated Supply Pedal Valves for Hot and Cold Water with China Indexes, Nickel-plated Supply Pipes, Nickel-plated Swinging Spouts, Nickel-plated Copper Removable Tilting Basins, 2-inch Nickel-plated Brass Trap to Wall, and Nickel-plated Strainer.

Sink 24x42 inches Depth 7½ inches
Sink 24x48 inches Depth 7½ inches

Size ..... inches	24x42	24x48
Price, as described, Vitreous China	140.25	147.15
" " " Porcelain, Class A	137.20	143.00
" " " " " B	127.25	131.30
" Sink with Legs and Supports only, Vitreous China	43.50	51.75
" " " " " " " Porcelain, Class A	33.20	39.00
" " " " " " " " " B	23.25	27.30

PORCELAIN SURGEON'S COMBINATION SINKS AND LAVATORIES

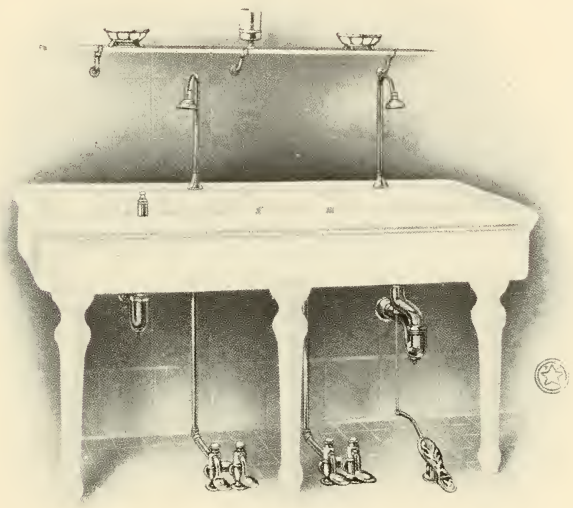


Plate E2071

Porcelain Combination Sink and Lavatory with Integral Instrument Tray, Three Porcelain Legs and Wall Supports, Nickel-plated Pedal Supply Valves with ½-inch Supply Pipes and Gooseneck Spouts with Removable Face Rose Spray, Nickel-plated Pedal Waste and Trap to Wall for Lavatory and Nickel-plated Standing Waste and Overflow and Trap to Wall for Sink.

Basin 13x17 inches Sink 15x24 inches Tray 7x15 inches
Length over all 5 feet Width 24 inches

Price, as described, Class A	195.95
" " " " B	155.80
" without Fittings, Class A	133.50
" " " " B	93.35

PORCELAIN SINKS

Plate E2081

Porcelain Roll Rim Two-part Sink with Integral Back, Integral Partition and Soap Dish, Porcelain Legs and Wall Supports, Nickel-plated Compression Flanged Bibbs with China Cross Handles, Nickel-plated Two-way Waste Pipe and Trap, Nickel-plated Waste Plug and Coupling.

Sizes Over All, inches: 56x26 and 62x26
Size of Left-hand Compartment, inches: 19x20 and 22x20
Size of Right-hand Compartment, inches: 31x20 and 34x20
Height of Back, 9 inches

Sizes	56x26	62x26
Price, as described, Class A	136.35	171.35
" " " " B	95.25	116.70
" without Fittings, Class A	119.00	154.00
" " " " B	77.90	99.35

PORCELAIN SINKS

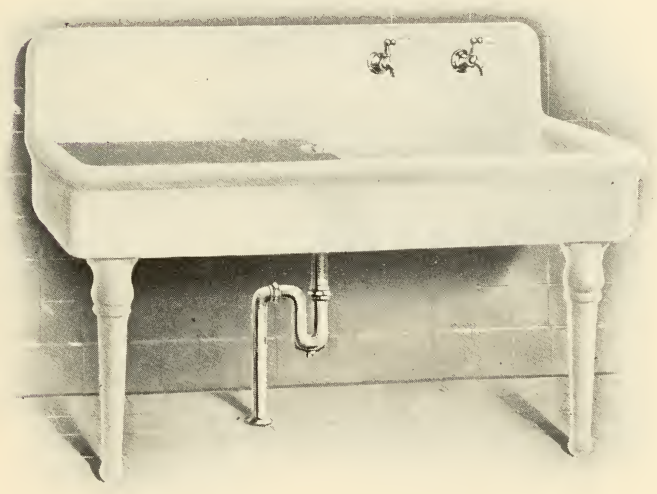


Plate E2091

Porcelain Roll Rim Sink with Integral Back and Drain Shelf, Porcelain Legs and Wall Supports, Nickel-plated Fuller Flanged Bibbs with China Handles, Nickel-plated Standing Overflow and Waste and Nickel-plated "S" Trap.

Length Over All, 61 inches. Wall to Front, 26 inches.
Back, 9 inches.

	Class A	Class B
Price, as described	135.40	91.50
" without Bibbs, Trap and Waste	124.00	80.10
Add for Rubber Drain Mat		1.40

VITREOUS AND PORCELAIN SINKS

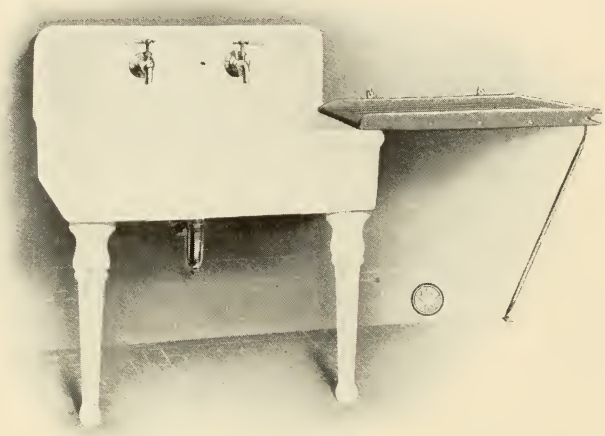


Plate E2101

Vitreous China or Porcelain Roll Rim Sink with Integral Back, Porcelain Legs, Ash Drain Board, with Nickel-plated Telescopic Legs and Wall Hinges, Nickel-plated Fuller Bibbs with China Handles, Nickel-plated Strainer and 1½-inch Nickel-plated P Trap.

Back 9 inches Depth Inside 7½ inches

Size.....inches	22x24	22x30	24x36	24x42
Price, as described, Vitreous China.....	60.30	66.55	72.80	.....
" " " Porcelain, Class A.....	57.20	62.20	67.20	77.20
" " " " " B.....	45.55	48.75	52.00	58.40
" Sink and Legs only, Vitreous China.....	44.50	52.00	59.50	.....
" " " " " Porcelain, Class A.....	34.00	39.00	44.00	54.00
" " " " " " " B.....	22.35	25.55	28.80	35.20
" " without Legs, Vitreous China.....	37.00	44.50	52.00	.....
" " " " Porcelain, Class A.....	25.00	30.00	35.00	45.00
" " " " " " B.....	16.05	19.25	22.50	28.90

Drain board furnished 24 or 30 inches long for right or left-hand end.

ENAMELED IRON APRON SINKS

ONE PIECE

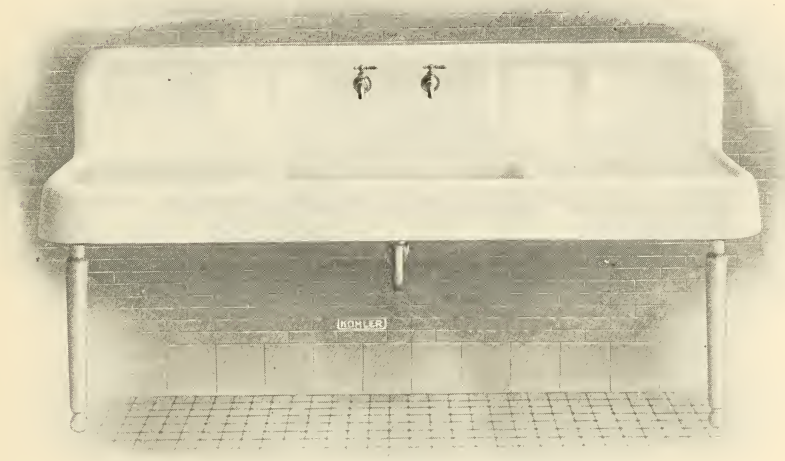


Plate E2111

Enameled Iron Roll Rim Sink with Apron, Double Drain Boards and 12-inch Back all in one piece, Enameled Adjustable Legs, Concealed Wall Hangers, Nickel-plated Fuller Flanged Bibbs, Nickel-plated Plain "P" Trap and Nickel-plated Brass Strainer with Coupling and Tail Piece.

Sink Inches	Drain Boards Inches	Back Inches	Apron Inches	Length Over All Inches	Width Over All Inches
20x30	20x24	12	6	78¾	21
22x30	22x24	12	6	78¾	23

Sizes	20x30	22x30
Price, as described	121.30	126.90
" less Bibbs and Trap	112.20	117.80
Add for Rubber Drain Board Mats.....each	2.80	3.30

If with Painted Legs instead of Enameled Iron Legs, deduct per pair.. 4.60

ENAMELED IRON APRON SINKS

ONE PIECE

Plate E2121

Enameled Iron Roll Rim Sink with Apron, Left-Hand Drain Board and Back all in one piece, Enameled Iron Adjustable Legs, Concealed Wall Hangers, Nickel-plated Fuller Flanged Bibbs, Nickel-plated Plain "P" Trap, Nickel-plated Brass Strainer with Coupling and Tail Piece.

Sink Inches	Drain Board Inches	Back Inches	Apron Inches	Length Over All Inches	Width Over All Inches
20x30	20x24	12	6	56	21
22x30	22x24	12	6	56	23

Sizes	20x30	22x30
Price, as described	**78.60**	**82.10**
" less Bibbs and Trap	**69.50**	**73.00**

If with Rubber Drain Board Mat, add, 20x24 inch, 2.80 22x24-inch..... **3.30**
" " Painted Legs instead of Enameled Legs, deduct, per pair..... **4.60**

Also furnished with Right-Hand Drain Board.

ENAMELED IRON APRON SINKS

ONE PIECE

KITCHENETTE TYPE

Plate E2131

Enameled Iron Roll Rim Sink with Apron, Left-hand Drain Board and Back all in one piece, Concealed Wall Hangers, Nickel-plated Fuller Bibbs, Nickel-plated P Trap and Nickel-plated Strainer.

Sink 20x22 inches Drain Board 20x20 inches Back 12 inches
Length Over All 42¾ inches Width Over All 20 inches

Price, as described	51.85
" less Bibbs and Trap	42.75
If with Enameled Iron Legs, add	8.00
" " Painted " " "	3.40

Also furnished with right hand drain board.

ENAMELED IRON APRON SINKS

ONE PIECE

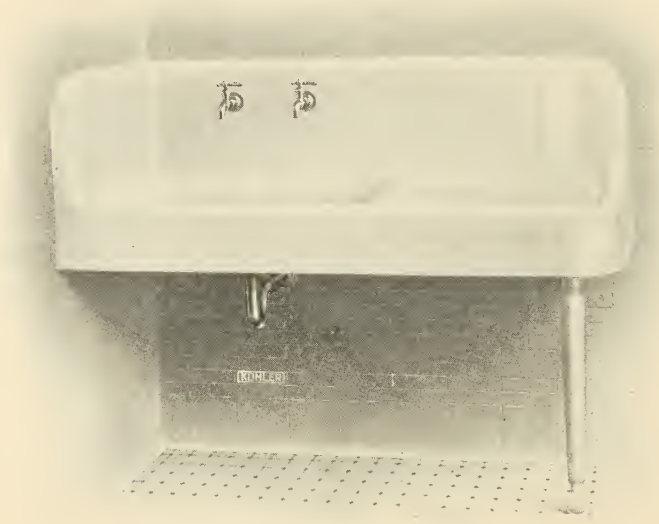


Plate E2141

Enameled Iron Roll Rim Sink with Apron, Right-Hand Drain Board, Back and Left Hand End all in one piece, Enameled Iron Adjustable Leg, Concealed Wall Hangers, Nickel-plated Fuller Flanged Bibbs, Nickel-plated Plain "P" Trap, Nickel-plated Brass Strainer with Coupling and Tail Piece.

Sink Inches	Drain Board Inches	Back Inches	Apron Inches	Length Over All Inches	Width Over All Inches
20x30	20x24	12	6	54¼	21
22x30	22x24	12	6	56	23

Sizes	20x30	22x30
Price, as described	**79.90**	**83.40**
" less Bibbs and Trap	**70.80**	**74.30**

If with Rubber Drain Board Mat, add, 20x24-inch, 2.80; 22x24-inch.... **3.30**

" " Painted Iron Leg instead of Enameled Iron Leg, deduct..... **2.30**

Also furnished with Left-Hand Drain Board and Right-Hand End Piece.

ENAMELED IRON APRON SINKS

ONE PIECE

Plate E2151

Enameled Iron Roll Rim Sink with Apron, Left-hand Drain Board, Back and Left-hand End all in one piece, Enameled Iron Adjustable Leg, Concealed Wall Hangers, Nickel-plated Fuller Flanged Bibbs, Nickel-plated "P" Trap, Nickel-plated Strainer with Coupling and Tail Piece.

Sink Inches	Drain Board Inches	Back Inches	Apron Inches	Length Over All Inches	Width Over All Inches
22x30	22x24	12	6	56	23

Price, as described	76.40
" less Bibbs and Trap	68.10
If with Rubber Drain Board Mat, add	3.30
" " Painted Leg instead of Enameled Leg, deduct	2.80

Also furnished with Right-hand Drain Board Back and Right-hand End.

ADJUSTABLE SINK SEAT

(J. Allingham Patent)

An article designed for the comfort and convenience of housekeepers. The seat swings freely on the sink leg and is concealed under the sink out of the way when not in use. It is properly located, not like an ordinary kitchen chair, which is always in the way, having to be removed when sweeping and scrubbing.

It is neat and strong, easily supporting 500 pounds.

The leg will fit any sink, and having 4 inches vertical adjustment is adapted to any variation in roughing-in measurements. The seat has a vertical adjustment of 2½ inches on the bracket.

The leg is made in four sizes, Nos. 1, 2, 3, and 4. No. 1 will elevate the top rim of sink from 28 to 32 inches, inclusive, above the floor, No. 2 from 31 to 34 inches. On integral drain board sinks, one No. 1 and one No. 3 will elevate sink same distance as No. 1, and one No. 2 and one No. 4 leg will elevate sink same distance as No. 2.

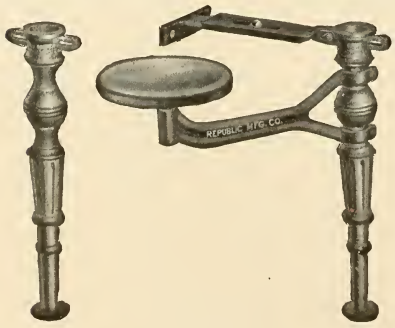


Plate E2161

Price, No. 1 Leg	each	1.00
" " 2 "	"	1.25
" " 3 "	"	1.50
" " 4 "	"	1.75
" " 1 Swing Seat, Birch Mahogany	"	2.25
" " 2 " " " "	"	3.00

No. 2 seat is adapted for integral apron sinks with lugs on drain board.

ENAMELED IRON APRON SINKS

ONE PIECE

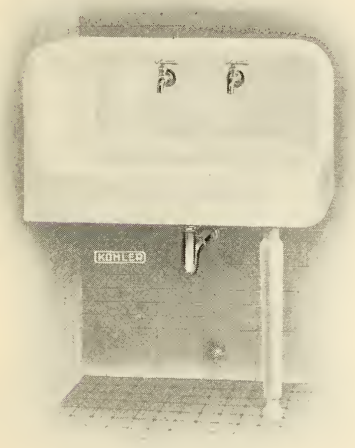


Plate E2171

Enameled Iron Roll Rim Sink with Apron, Back and Left-Hand End all in one piece, Enameled Iron Adjustable Leg, Concealed Wall Hangers, Nickel-plated Fuller Flanged Bibbs, Nickel-plated Vented "P" Trap, Nickel-plated Brass Strainer with Coupling and Tail Piece. Also furnished with Right-hand End.

Sink, 18x30 in. Back, 12 in. Apron, 6 in.
Sink, 20x30 in. Back, 12 in. Apron, 6 in.

Sizes	18x30	20x30
Price, as described	**54.55**	**56.55**
" less Bibbs and Trap	**45.45**	**47.45**

If with Painted Leg, deduct. **2.30**

Enameled Iron Roll Rim Sink with Apron and Back all in one piece, Concealed Wall Hangers, Nickel-plated Fuller Flanged Bibbs, Nickel-plated Vented "P" Trap, Nickel-plated Brass Strainer with Coupling and Tail Piece.

Sink, 18x30 in. Back, 12 in. Apron, 6 in.
Sink, 20x30 in. Back, 12 in. Apron, 6 in.

Sizes	18x30	20x30
Price, as described	**45.15**	**46.50**
" less Bibbs and Trap	**36.05**	**37.40**

If with Enameled Iron Adjustable Legs, add, per pair **8.00**
" with Painted Iron Adjustable Legs, add, per pair..... **3.40**

Plate E2172

ENAMELED IRON ROLL RIM SINKS

ONE PIECE

Plate E2181

Enameled Iron Roll Rim Sink with Back and Left-Hand Drain Board all in one piece, Concealed Hangers, Painted Iron Adjustable Legs, Nickel-plated Fuller Flange Bibbs, Nickel-plated "P" Trap, Nickel-plated Strainer and Tail Piece.

Sink Inches	Drain Board Inches	Back Inches	Length Over All Inches	Width Over All Inches
20x26	18x20	12	44	20½
20x28	20x20	12	48	20½
20x30	20x24	12	55¼	20½
22x30	22x24	12	55¼	22½

Sizes.....inches	20x26	20x28	20x30	22x30
Price, as described	46.70	48.60	50.55	52.90
" without Bibbs and Trap	37.60	39.50	41.45	43.80

If without Legs, deduct, per pair 3.40
If with Enameled Legs, instead of Painted, add, per pair 4.60

If with Rubber Drain Board Mat, add, 18x20, 2.30; 20x20, 2.60; 20x24, 2.80; 22x24, 3.30

Sink also furnished with Right-Hand Drain Board.

ENAMELED IRON ROLL RIM SINKS

ONE PIECE
KITCHENETTE TYPE

Plate E2191

Enameled Iron Roll Rim Sink with Back and Left-hand Drain Board all in one piece with Concealed Hangers, Nickel-plated Fuller Bibbs, 1½ Nickel-plated P Trap and Nickel-plated Strainer.

Sink 20x22 inches	Drain Board 20x20 inches
Back 12 inches	Length Over All 42 inches

Price, as described **41.10**
" without Fittings **32.00**

Also furnished with right-hand drain board. If desired, can be furnished with legs allowing sink adjustment 30 to 34 inches from floor to top of rim, or special length legs allowing adjustment 32 to 36 inches.

ENAMELED IRON ROLL RIM SINKS

ONE PIECE

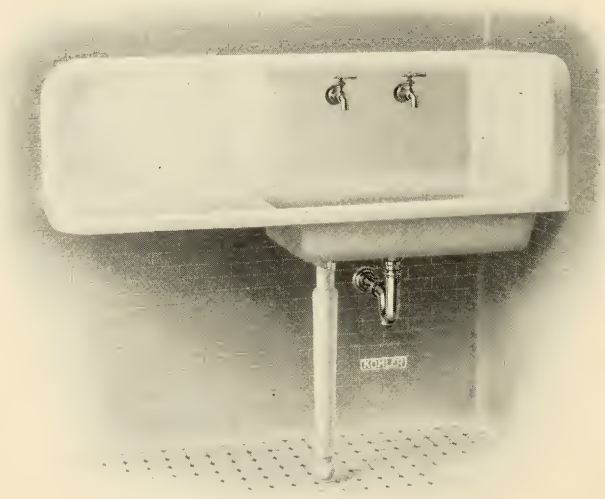


Plate E2201

Enameled Iron Roll Rim Sink with Back, Right-hand End, and Left-hand Drain Board all in one piece, Concealed Hangers, Painted Iron Adjustable Leg, Nickel-plated Fuller Flanged Bibbs, Nickel-plated Strainer and P Trap.

Sink Inches	Drain Board Inches	Back Inches	Length Over All Inches	Width Over All Inches
20x30	20x24	12	55½	21
22x30	22x24	12	55½	22¾

Size.....inches	20x30	22x30
Price, as described	**58.10**	**60.50**
" without Bibbs and Trap	**49.00**	**51.40**

If with Enameled Leg instead of Painted, add..... **2.30**

If with rubber drain board mat, add, 20x24 2.80; 22x24, 3.30.

Furnished with left-hand end and right-hand drain board at same price.

ENAMELED IRON ROLL RIM SINKS

ONE PIECE

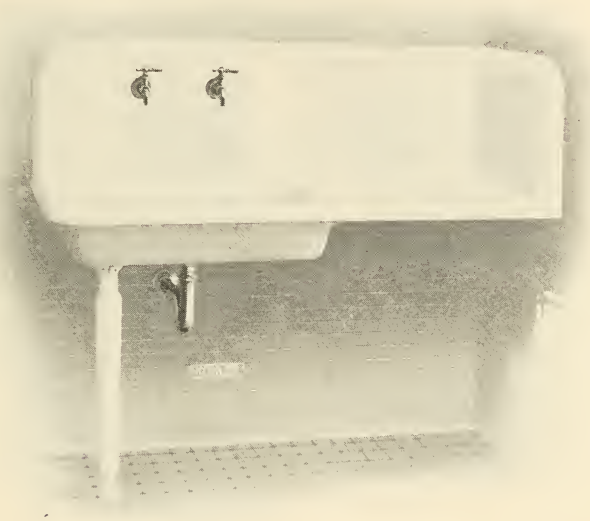


Plate E2211

Enameled Iron Roll Rim Sink with Back and Right-Hand End Piece and Right-Hand Drain Board all in one piece, Concealed Wall Hangers, Painted Iron Adjustable Leg, Nickel-plated Fuller Adjustable Flange Bibbs, Nickel-plated "P" Trap, Nickel-plated Strainer and Tail Piece.

Sink, 22x30 inches. Drain Board, 22x24 inches. Back, 12 inches
Length Over All, 55½ inches. Width Over All, 22¾ inches.

Price, as described	60.50
" without Bibbs and Trap	51.40
If without Leg, deduct	1.70
" with Enameled Leg, instead of Painted, add	2.30
" " Rubber Drain Board Mat, add	3.30

Also furnished with Left-Hand End Piece and Drain Board.

ENAMELED IRON ROLL RIM SINKS

ONE PIECE

Plate E2221

Plate E2222

PLATE E2221

Enameled Iron Roll Rim Sink with 12-inch Back in one piece, Concealed Wall Hangers, Nickel-plated Fuller Flanged Bibbs, Nickel-plated Brass P Trap, Nickel-plated Brass Strainer with Coupling and Tail Piece.

Size.....inches	16x24	18x24	18x30	20x20	20x24	20x30	20x36	20x40	22x30	22x36	22x42
Price, as described...	**24.50**	**24.30**	**27.70**	**24.80**	**26.35**	**28.95**	**32.00**	**36.75**	**31.10**	**34.20**	**38.60**
" less Bibbs and Trap	**15.40**	**15.20**	**18.60**	**15.70**	**17.25**	**19.85**	**22.90**	**27.65**	**22.00**	**25.10**	**29.50**

PLATE E2222

Enameled Iron Roll Rim Sink with 12-inch Back and Left-hand End all in one piece, Concealed Wall Hangers, Nickel-plated Fuller Flanged Bibbs, Nickel-plated Brass P Trap, Nickel-plated Brass Strainer with Coupling and Tail Piece.

Size.....inches	16x24	18x24	18x30	18x36	20x30	20x36	20x40
Price, as described.....	**31.50**	**31.85**	**32.15**	**38.10**	**36.25**	**39.70**	**44.40**
" less Bibbs and Trap	**22.40**	**22.75**	**23.05**	**29.00**	**27.15**	**30.60**	**35.30**

Also furnished with right-hand end piece.

ENAMELED IRON SINKS

FLAT RIM, WITH NEW STYLE STRAINER

Plate E2231

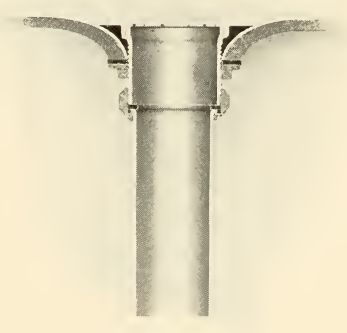


Plate E2232

No bolts are required to fit this strainer to the sink. The strainer is drawn tight onto the outlet by means of a locknut on the shank. The top flange and shank are made in one piece and the center plate screws flush into the top of plug. The strainer plate can be easily removed.

Size Inches	Price Each	Size Inches	Price Each
12x16	**5.40**	18x36	**10.60**
12x18	**5.70**	20x24	**8.30**
14x20	**6.85**	20x30	**9.90**
16x20	**7.15**	20x36	**11.55**
16x24	**7.35**	20x40	**15.15**
16x30	**8.60**	20x48	**17.50**
18x24	**7.80**	22x36	**12.05**
18x30	**9.40**	24x48	**19.90**

If with patent overflow and plug strainer add **2.30**

ENAMELED IRON SINK BACKS AND ENDS

SINK BACKS, FOR FLAT RIM SINKS

12 Inches High

Plate E2241

Length.....inches	16	18	20	24	30	36	40	48
Price, 2 inches Deep..each	....	....	5.70	6.20	6.90	9.30	10.60	13.10
" 1½ " " .. "	3.70	4.00	4.40	5.30	5.60	8.25	9.20	12.25

SHALLOW PATTERN CORNER BACK
FOR FLAT RIM SINK

Plate E2242

SHALLOW PATTERN END PIECE
FOR FLAT RIM SINK

Plate E2243

SHALLOW PATTERN CORNER BACKS, FOR FLAT RIM SINKS

12 Inches High, 1½ Inches Deep

Length.....inches	20	24	30	36
Price.....each	4.40	5.30	5.60	8.25

SHALLOW PATTERN END PIECES, FOR FLAT RIM SINKS

12 Inches High, 1½ Inches Deep

Length.....inches	16	18	20
Price.....each	3.70	4.00	4.40

Sink backs are regularly furnished with two cock holes 8 inches center to center. Sink backs with one hole only will be furnished at same price. For special drilling, prices upon application.

In ordering end pieces, state whether right or left-hand end is desired.

DRAIN BOARDS AND MATS

KOHLER ENAMELED IRON DRAIN BOARD

Plate E2251

Enameled Iron Interchangeable Drain Board for Roll Rim Sinks, with Concealed Enameled Iron Bracket.

Size.....inches	16x18	18x18	20x18	22x18	16x24	18x24	20x24	22x24
Price.....	**5.25**	**5.75**	**6.25**	**6.75**	**6.25**	**6.75**	**7.25**	**7.75**

ASH DRAIN BOARD

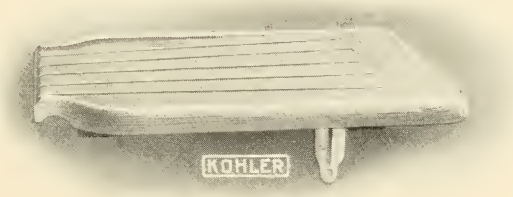


Plate E2252

Ash Wood Interchangeable Drain Board for Roll Rim Sinks, with Concealed Iron Bracket.

Size.....inches	16x18	18x18	20x18	22x18	16x24	18x24	20x24	22x24
Price.....	**2.50**	**2.75**	**3.00**	**3.25**	**3.25**	**3.50**	**4.00**	**4.50**

Plate E2253

RUBBER MATS FOR ENAMELED IRON DRAIN BOARDS

For Drains Width.....inches	16	18	20	22
Price, for Drains 18 ins. Long..each	**2.75**	**3.00**	**3.50**	**4.00**
" " " 24 " " .. "	**3.75**	**4.00**	**4.25**	**4.50**

FOR DRAIN BOARDS CAST INTEGRAL WITH SINK

Size.....inches	20x18	20x20
Price.....each	**2.30**	**2.60**

Size.....inches	20x24	22x24
Price.....each	**2.80**	**3.30**

VITREOUS CHINA LABORATORY SINKS

Plate E2261

Plate E2262

PLATE E2261

Vitreous China Flat Rim Laboratory Sink with Integral Patent Overflow.

Size inside, 4x4x5 inches. Size outside, 5x5x6¼ inches.

Price 5.00
If without Patent Overflow deduct 1.00

PLATE E2262

Vitreous China Flat Rim Laboratory Sink with Integral Patent Overflow.

Size inside, 19½x13½x7½ inches. Size outside, 22x14¾x8¼ inches.

Price ..... each 15.00
If without Patent Overflow deduct 1.00

Plate E2263

Vitreous China Flat Rim Laboratory Sink with Integral Patent Overflow and Integral Shelf.

Size inside, 19½x13½x7½ inches. Size outside, 22x14¾x8½ inches.
Shelf, 6 inches wide. To top of shelf, 3½ inches.

Price 17.00
If without Patent Overflow deduct 1.00

PORCELAIN PANTRY SINKS

FLAT RIM

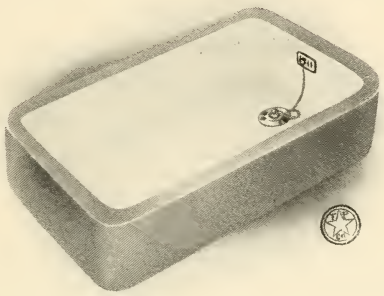


Plate E2271

Glazed White Inside Only. Furnished with or without Overflow.

Size.....inches	14x20	16x23	17x24	17x28	17x28	20x30	20x30
Depth Inside.....inches	5	6	6	6	10	7	10
Price, Sink Only..Class A	5.00	6.70	7.50	9.20	10.85	10.85	13.35
" " " .. " B	3.50	4.70	5.25	6.45	7.60	7.60	9.35

Add for Waste Plug and Coupling..... 1.15
" " Overflow Grate and Coupling..... 1.40

FLAT RIM WITH END RECESS

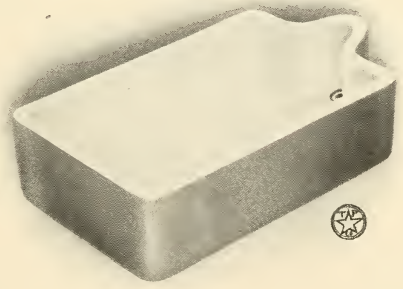


Plate E2272

Furnished Glazed Inside Only.

Size.....inches	17x24	17x28	20x30
Depth Inside..... "	6	6	6½
Price, Sink Only.....Class A	8.35	10.00	11.70
" " " ..... " B	5.85	7.00	8.20

Add for Nickel-plated Standing Overflow and Waste with 1¼-inch O. D. Tail Piece 3.25

Measurements of sinks given above do not include the recess.

PANTRY SINKS

GERMAN SILVER OR PLANISHED COPPER

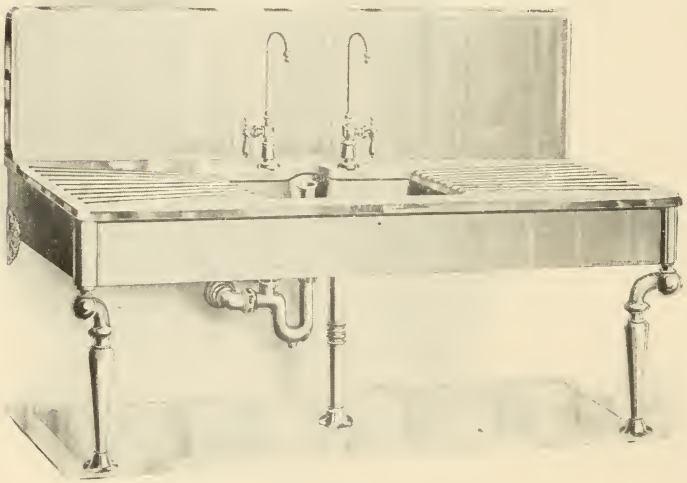


Plate E2281

German Silver or Copper Recessed Pantry Sink with Nickel-plated Standing Overflow and Waste, Countersunk Marble Top with Drain Boards in one piece, Marble Back and 8-inch Aprons on Front and Ends, Nickel-plated Brass Legs and Wall Supports, Nickel-plated Fuller Pantry Cocks and Nickel-plated "P" Trap with Vent.

Can also be furnished with German Silver or Copper Top, Back and Apron.

Prices quoted upon receipt of full specifications.

PANTRY SINKS

GERMAN SILVER OR PLANISHED COPPER

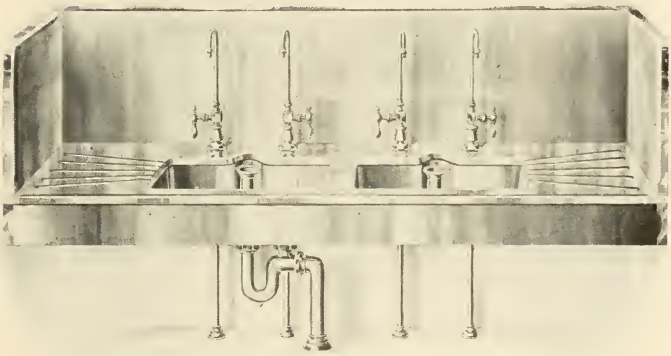


Plate E2291

German Silver or Copper Recessed Pantry Sinks with Nickel-plated Standing Overflows and Wastes, German Silver or Copper Top with Grooved Drain Boards, German Silver or Copper Covered Back, Apron and End Pieces, Nickel-plated Wall Supports, Nickel-plated Fuller Pantry Cocks, Nickel-plated Supply Pipes, Connected Waste and Nickel-plated "S" Trap with Vent.

Can also be furnished with Marble Back, Apron and End Pieces.

Prices quoted upon receipt of full specifications.

PANTRY SINKS

GERMAN SILVER OR PLANISHED COPPER

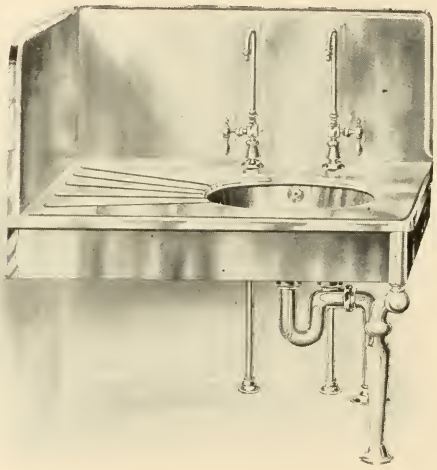


Plate E2301

German Silver or Planished Copper Pantry Sink, German Silver or Copper Top with Grooved Drain Board, Marble Back, Apron and Left-Hand End Piece, Nickel-plated Leg and Wall Supports, Nickel-plated Fuller Pantry Cocks, Nickel-plated Supply Pipes and Nickel-plated "S" Trap with Vent.

This outfit can also be furnished with German Silver or Copper Back, End and Apron.

Prices quoted upon receipt of full specifications.

COPPER AND GERMAN SILVER PANTRY SINKS

OVAL
WITH PATENT OVERFLOW AND PLUG

Plate E2311

SQUARE
WITH PATENT OVERFLOW AND PLUG

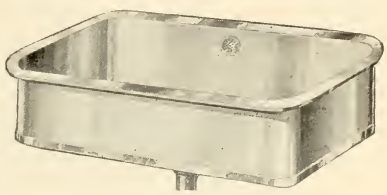


Plate E2312

Size ..... inches	12x18	12x20	14x16	14x20	14x24	16x24	16x30	18x30
Price, Oval, Copper ..... each	8.00	8.50	9.00	9.50	11.00	12.00	14.00	15.00
" " German Silver..... "	12.50	13.50	14.50	15.00	18.00	20.00	23.00	25.00
" Square, Copper..... "	4.50	5.00	4.50	6.00	7.00	8.00	10.00	11.00
" " German Silver..... "	9.00	10.00	9.00	12.00	14.00	16.00	20.00	22.00

If sinks are wanted without patent overflow and waste plug, deduct 2.00.

SQUARE
WITH STANDING OVERFLOW AND WASTE

Plate E2313

RECESS
WITH STANDING OVERFLOW AND WASTE

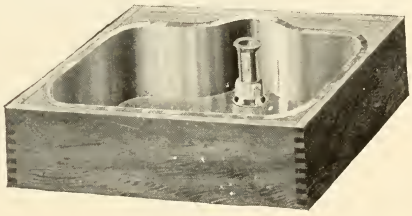


Plate E2314

Size ..... inches	12x18	12x20	14x16	14x20	14x24	16x24	16x30	18x30
Price, Square, Copper..... each	7.00	7.50	7.00	8.25	9.25	10.00	12.00	13.00
" " German Silver..... "	14.00	15.00	14.00	16.50	18.50	20.00	24.00	26.00
" Recess, Copper..... "	.....	.....	.....	15.00	16.00	17.50	19.50	21.00
" " German Silver..... "	.....	.....	.....	26.50	29.00	31.50	34.50	36.50

If waste is wanted silver-plated, add 2.00.

WITH BACK AND GROOVED WOODEN DRAIN BOARD

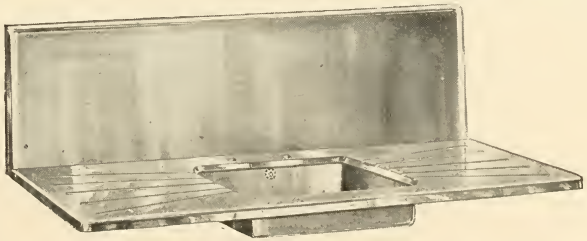


Plate E2315

Oval or square sinks fitted up with one or two drain boards, back, end pieces or for recess in any size required, covered with copper or German silver. When ordering, give outside measurements, length, width, height of back, length of drain board, size and style of sink. Prices on application.

SLATE SINKS

Plate E2321

Slate Sink Top with Right-Hand Grooved Drain Board, Back and Aprons, Enameled Iron Sink fitted in, Nickel-plated Heavy Brass Legs with Braces to Wall, Nickel-plated Fuller Bibbs, Nickel-plated Waste Strainer.

Length of Drain Board 24 inches. Height of Back 16 inches.
Width of Aprons 8 inches.
Thickness of Slate: Top 1¼ inches, Back and Aprons 1 inch.

Size of Sink.....inches	18x30	20x30	20x36	20x40	22x42
Total Length.....	4ft. 6in.	4ft. 6in.	5ft.	5ft. 4in.	5ft. 6in.
Price, as described	**36.25**	**37.50**	**40.25**	**42.25**	**44.25**
" Slate only	**14.00**	**15.00**	**17.00**	**18.50**	**20.00**
If with Galvanized Iron Legs deduct.....				**9.40**	
" " Painted " " "				**10.40**	

Drain Board can also be furnished left-hand end, also furnished with end piece for corner.

In ordering specify size of sink to be used and on which end drain board is desired.

SLATE SINKS

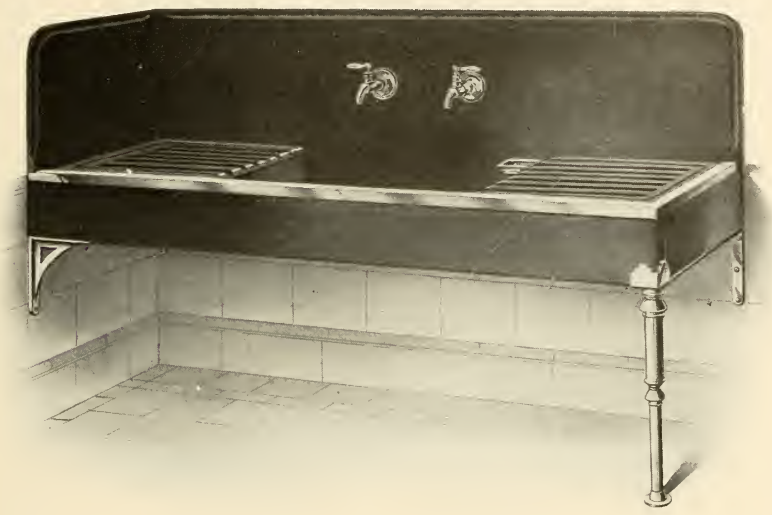


Plate E2331

Slate Sink with Back, Left-hand End Piece, Right and Left-hand Drain Boards, Nickel-plated Heavy Brass Leg and Wall Support, Wall Bracket, Nickel-plated Fuller Bibbs, Nickel-plated Waste Strainer with Coupling and Brass Soap Dish.

Height of Back 16 inches Depth of Sink 8 inches
Length of Drain Boards each 18 inches
Thickness of Slate 1¼ inches

Size of Sink ..... inches	18x24	20x30	20x36	22x30	22x36
Total Length ..... feet	5	5½	6	5½	6
Price, as described without Brass Rim	33.55	35.05	36.55	35.55	37.55
" " " with Brass Rim.....	38.55	40.30	42.55	41.05	43.55

Size of Sink ..... inches	22x42	24x30	24x36	24x48	.....
Total Length ..... feet	6½	5½	6	7	.....
Price, as described without Brass Rim	39.55	36.05	38.05	42.05	.....
" " " with Brass Rim	45.55	41.80	44.30	49.30	.....

If with Galvanized Iron Leg, deduct	4.70
" " Painted " " "	5.20
" " Galvanized Soap Dish "	1.20
" without Soap Dish, deduct	2.00
" " Bibbs, deduct	2.50

This sink may also be furnished for right-hand corner.

All measurements are outside.

Cock holes in back are drilled unless otherwise ordered.

In ordering give size and location of waste.

SLATE SINKS

Plate E2341

Slate Sink with Back, Left-hand End Piece, Right-hand Grooved Drain Board, Nickel-plated Heavy Brass Leg and Wall Support, Wall Bracket, Nickel-plated Fuller Bibbs, Nickel-plated Waste Strainer with Coupling and Brass Soap Dish.

Height of Back, 16 inches. Depth of Sink, 8 inches.
Length of Drain Board, 24 inches.
Thickness of Slate, 1¼ inches.

Size of Sink.....inches	18x24	20x30	20x36	22x30	22x36
Total Length.....feet	4	4½	5	4½	5
Price, as described, without Brass Rim...	28.05	29.55	31.55	30.05	32.05
" " " with " " ...	32.80	34.55	36.80	35.30	37.80

Size of Sink.....inches	22x42	24x30	24x36	24x48	.....
Total Length.....feet	5½	4½	5	6	.....
Price, as described, without Brass Rim...	34.05	30.55	32.55	36.55	.....
" " " with " " ...	39.80	36.05	38.55	43.55	.....

If with Galvanized Iron Leg, deduct.....	4.70
" " Painted " " "	5.20
" " Galvanized Soap Dish "	1.20
" without Soap Dish, deduct.....	2.00
" " Bibbs, deduct.....	2.50

Also furnished with right-hand end and left-hand drain board.

All measurements are outside.

Cock holes in back will be drilled unless otherwise ordered.

In ordering give size and location of waste.

SLATE SINKS

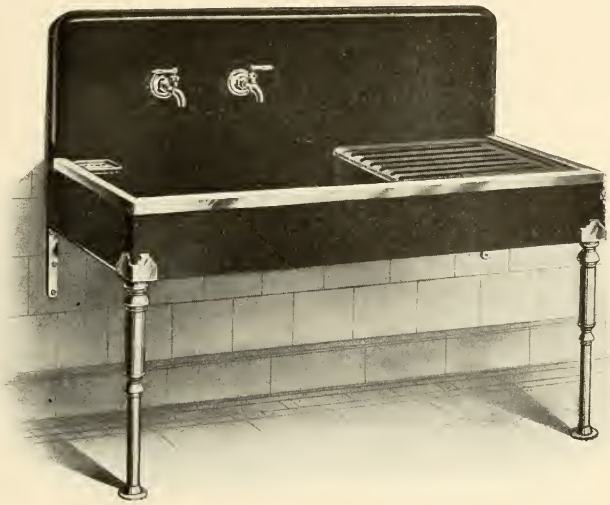


Plate E2351

Slate Sink with Back, Right-hand Grooved Drain Board, Nickel-plated Heavy Brass Legs with Wall Braces, Nickel-plated Fuller Bibbs, Nickel-plated Waste Strainer with Coupling and Brass Soap Dish.

Height of Back 16 inches Depth of Sink 8 inches
Length of Drain Board 24 inches
Thickness of Slate 1¼ inches

Size of Sink.....inches	18x24	20x30	20x36	22x30	22x36
Total Length.....feet	4	4½	5	4½	5
Price, as described without Brass Rim...	32.50	34.00	36.00	34.50	36.50
" " " with " " ...	37.50	39.25	41.50	40.00	42.50

Size of Sink.....inches	22x42	24x30	24x36	24x48
Total Length.....feet	5½	4½	5	6
Price, as described without Brass Rim.....	38.50	35.00	37.00	41.00
" " " with " "	44.50	40.75	43.25	48.25

If with Galvanized Iron Legs, deduct.....	9.40
" " Painted " " "	10.40
" " Galvanized Soap Dish, deduct.....	1.20
" without Soap Dish, deduct.....	2.00
" " Bibbs, deduct.....	2.50

All measurements are outside.
Cock holes in back will be drilled unless otherwise specified.
In ordering give size and location of waste.

SLATE SINKS

Plate E2361

Slate Sink with Back, Nickel-plated Heavy Brass Legs with Braces to Wall, Nickel-plated Fuller Bibbs, Nickel-plated Strainer with Coupling, and Polished Brass Soap Dish.

Height of Back, 12 inches. Depth of Sink, 8 inches.
Thickness of Slate, 1 inch.

Size of Sink .....inches	18x24	20x30	20x36	22x30	22x36
Price, as described, without Brass Rim . .	28.00	29.00	29.80	29.25	30.00
" " " with " " . .	32.00	33.00	34.00	33.25	34.50

Size of Sink .....inches	22x42	24x30	24x36	24x48	.....
Price, as described, without Brass Rim . .	31.00	29.65	30.50	32.60	.....
" " " with " " . .	35.75	33.90	35.00	38.00	.....

If with Galvanized Iron Legs, deduct	9.40
" " Painted " " "	10.40
" " Galvanized Soap Dish "	1.20
" without Soap Dish, deduct	2.00
" " Bibbs, deduct	2.50

Measurements given are outside.

Cock holes in back will be drilled unless otherwise ordered.

ENAMELED IRON WASH SINKS

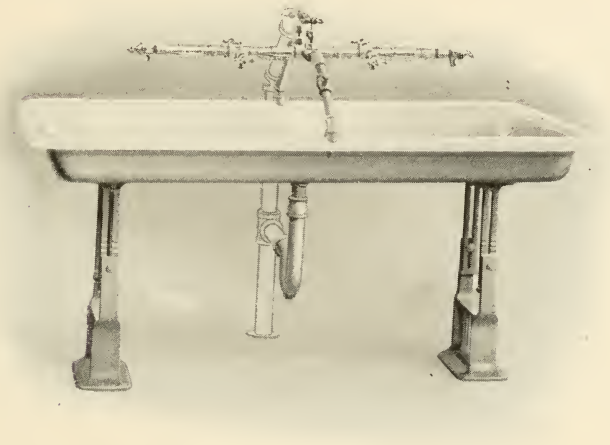


Plate E2371

Enameled Iron Roll Rim Factory Wash Sink on Painted Adjustable Standards, Fitted through Rim with ¾-inch Galvanized Supply Pipes for Hot and Cold Water, ¾-inch Brass Check and Controlling Valves, ¾-inch Mixing Laterals Reduced to ½ inch at Ends, with Six ½-inch Compression Bibbs, Six Nickel-plated Soap Dishes, 1¼-inch Painted P Trap with Female Iron Pipe Outlet and Strainer.

Width 27 inches Depth Inside 6 inches
Height to Top of Rim, Adjustable 29 to 34 inches

Length.....inches	48	60	72
Price, Sink with Standards only	**65.00**	**77.00**	**89.00**

Supply and Waste Fittings extra.

ENAMELED IRON WASH SINKS

Plate E2381

Enameled Iron Roll Rim Factory Wash Sink on Painted Adjustable Standards, Galvanized Supply Pipe Supports Tapped at Top for ¾-inch Supply Pipe and Fitted with ¾-inch Galvanized Lateral Supply Pipes Reduced to ½-inch at Ends, Six ½-inch Compression Bibbs, Four Liquid Soap Dispensers, 1¼-inch Painted P Trap with Female Iron Pipe Outlet and Strainer.

Width 27 inches Depth Inside 6 inches
Height to Top of Rim, Adjustable 29 to 34 inches

Length.....inches	48	60	72
Price, Sink with Supply Pipe, Supports and Standards Only	**65.00**	**77.00**	**89.00**

Supply and Waste Fittings extra.

GALVANIZED SCULLERY SINKS

GOVERNMENT TYPE

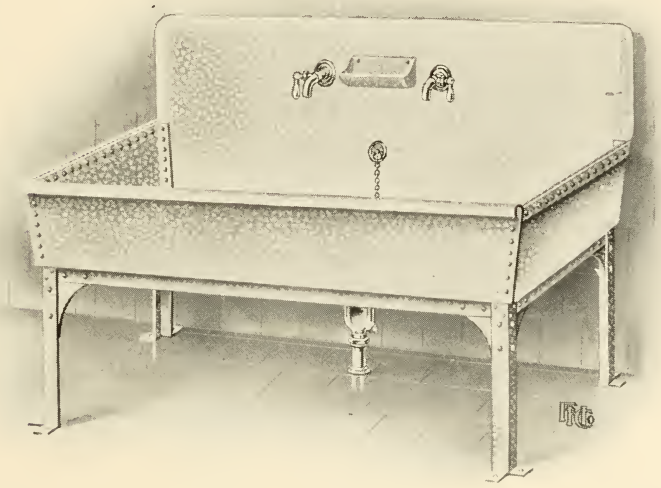


Plate E2391

Government Type Galvanized Sheet Steel Scullery Sink, Rolled Edge Front, Bottom and Rolled Edge Back in One Piece, Re-enforced End Pieces riveted to Bottom, Back and Front of Sink, Galvanized Soap Dish, Sink supported on and riveted to Re-enforced Galvanized Steel Frame, fitted with Two ¾-inch Nickel-plated Fuller Flanged Bibbs, 2-inch Nickel-plated Cast Brass Flask Trap and Cast Brass Nickel-plated Flange.

Sink Inside, 24x60 inches. Depth Inside, 12 inches.
Back, 15 inches.

Price, as described 93.30

If without Trap, deduct 10.00
" " Bibbs, " 3.00

Other sizes made to order.

PORCELAIN SLOP SINKS

Plate E2401

Porcelain Flushing Rim Clinic Slop Sink on Porcelain Pedestal Trap Standard; Nickel-plated Pedal Valve Supply for Pan Wash Jet and Supply; Nickel-plated Combination Hot and Cold Water Fitting with China Index Handles; Spout with Pail Hook and Support; 1½-inch Nickel-plated Expansion Supply Spud and Rubber Washer, Bolts and Washers.

Sink 19x23 inches Depth 6¾ inches

Price, as described, Class A	87.05
" " " " B	74.05
Sink and Trap with Bolts only, Class A	44.25
" " " " " " " B	31.25

EXTRA FOR FLUSH TANK WITH PULL FITTINGS AND FLUSH PIPE

4-gal. Vitreous Tank with Fittings and Flush Pipe	24.50
5 " " " " " " " "	25.00
6 " " " " " " " "	25.00
8 " " " " " " " "	29.00

VITREOUS CHINA SLOP SINKS

Plate E2411

Vitreous China Pedestal Slop Sink with Flushing Rim and Pan Jet, 8-gallon Vitreous China Flush Tank with Flush Fittings, Nickel-plated Supply Pipe to Wall, Nickel-plated Flush Pipe with Holder and Connections, Pedal Valves Supply for Pan Wash Jet with Supply Pipe.

Front to Back 20 inches Width 24 inches
Height to Top of Rim 25 inches

Price, as described **100.80**

This sink is especially adapted for hospital use. The tank is for flushing through the rim and the pan jet is operated by the pedal valves.

VITREOUS CHINA SLOP SINKS

Plate E2421

Plate E2422

PLATE E2421

Vitreous China Roll Rim Slop Sink with Integral Back, on Vitreous China Trap Standard, Nickel-plated Fuller Bibbs with China Handles and Nickel-plated Strainer.

Depth Inside 12 inches

Size ..... inches	18x20	20x22	22x24
Height of Back ..... inches	12	13	13
Price, as described	**37.30**	**41.45**	**45.65**
If without Bibbs, deduct, per pair		**3.85**	

PLATE E2422

Vitreous China All Roll Rim Slop Sink on Vitreous China Trap Standard, Nickel-plated Fuller Bibbs with China Handles and Nickel-plated Strainer.

Depth Inside 12 inches

Size ..... inches	16x20	18x22	20x24
Price, as described	**31.45**	**34.80**	**38.15**
If without Bibbs, deduct, per pair		**3.85**	

PORCELAIN SLOP SINKS

WITH INTEGRAL BACK

Plate E2431

ALL ROLL RIM

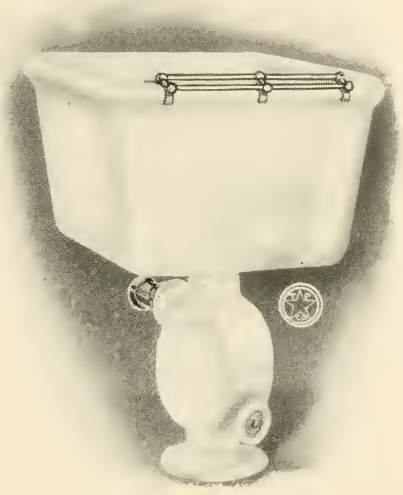


Plate E2432

WITH INTEGRAL BACK

Porcelain Slop Sink with 12-inch Integral Back, Vitreous China Pedestal Trap, Nickel-plated Compression Bibbs and Nickel-plated Strainer.

Size .....inches	18x20x12	20x22x12	22x24x12
Price, as described, Class A	35.80	40.80	45.80
" " " " B	28.30	31.50	34.70

If with Vented Iron Trap, Enameled Inside, Painted White Outside, deduct.....	2.65
" " " " " " " only, deduct	3.65
" " Vent and Vent Coupling on Vitreous China Trap, add.....	2.60
" " without Bibbs, deduct, per pair.....	2.45

ALL ROLL RIM

Porcelain All Roll Rim Slop Sink on Iron Pedestal Trap, Enameled Inside Painted White Outside, with Vent and Trap Screw, Nickel-plated Strainer and Nickel-plated Pail Guard

Size .....inches	16x20x12	18x22x12	20x24x12
Price, as described, Class A.....	33.75	37.05	40.40
" " " " B.....	30.25	32.55	34.90

If with Vitreous China Trap, add: With Vent, 4.10; without Vent	1.50
" without Pail Guard, deduct	12.60

ENAMELED IRON SLOP SINKS

ROLL RIM, WITH INTEGRAL BACK

Plate E2441

FLAT RIM, WITH SEPARATE BACK

Plate E2442

PLATE E2441

Enameled Iron Roll Rim Slop Sink with 14-inch Enameled Back in one piece, Enameled Adjustable Trap Standard, N. P. Brass Strainer, Cleanout Plug and Nickel-plated Compression Bibbs with China Indexes.

Sizes	16x20x12	18x22x12	20x24x12
Price, Enameled Inside, as described	35.70	39.70	43.70
" " " less Bibbs	27.00	31.00	35.00

PLATE E2442

Enameled Iron Flat Rim Slop Sink with 12-inch Separate Back, Enameled Adjustable Trap Standard, with N. P. Brass Strainer, Cleanout Plug and Nickel-plated Fuller Bibbs.

Sizes	16x20x12	18x22x12	20x24x12
Price, Enameled Inside, as described	28.20	31.20	34.20
" " " less Bibbs	23.50	26.50	29.50

ENAMELED IRON SLOP SINKS

Plate E2451

Enameled Iron Roll Rim Slop Sink with Enameled Iron Adjustable Trap Standard with Outlet Threaded for 2-inch Iron Pipe, Nickel-plated Brass Cleanout Plug and Strainer, with Nickel-plated Fuller Supply Fitting with Support and Pail Hook.

Size.....inches	16x20x12
Price, Enameled Inside only as described	**42.65**
" Enameled Inside only, without Supply Fitting..	**30.15**

These slop sinks may be furnished with other styles of trap standards at same price.

Enameled Iron Flat Rim Slop Sink, with Nickel-plated Open Brass Strainer with Iron Coupling and Collar for Lead Pipe Connection.

Size .....inches	16x16x10	16x20x12
Price, Enameled Inside ...	**9.60**	**12.75**
Size .....inches	18x22x12	20x24x12
Price, Enameled Inside ...	**13.50**	**16.30**

16x16x10-inch has center outlet; balance, end outlet.

Plate E2452

ENAMELED IRON SLOP SINK TRAP STANDARDS

WITH NICKEL-PLATED CLEANOUT PLUG FOR LEAD PIPE

PLAIN TRAP

Plate E2461

OPEN TRAP

Plate E2462

Price, Plain Trap Standard, Enameled All Over		11.00
" " " " "	Inside only	8.50
" Open " " "	All Over	11.00
" " " " "	Inside only	8.50

OPEN TRAP FOR 3-INCH SOIL PIPE

Plate E2463

ADJUSTABLE TRAP FOR 2-INCH IRON PIPE

Plate E2464

Price, Open Trap Standard, Enameled All Over		11.00
" " " " "	Inside only	8.50
" Adjustable Trap Standard, Enameled All Over		11.00
" " " " "	Inside only	8.50

Open trap standards can be furnished with hub vent.
Plain trap standards can be furnished with nickel-plated vent to wall.

PORCELAIN LAUNDRY TRAY AND SINK COMBINATIONS

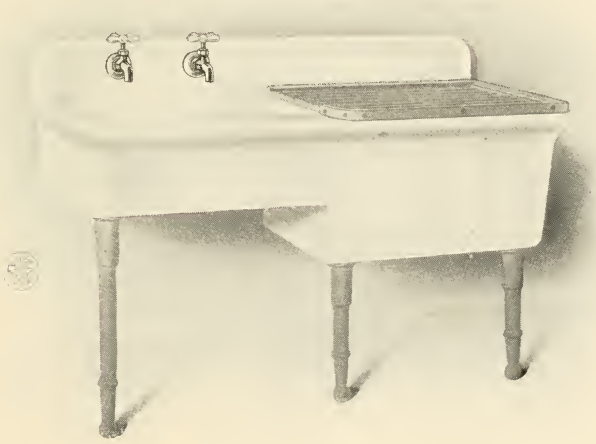


Plate E2471

Porcelain Combination Kitchen Sink and Laundry Tray with Integral Back, set on Bronzed Iron Legs with Wall Straps, Nickel-plated Brass Sink Strainer and Coupling, Nickel-plated Brass Wash Tray Plug and Coupling, 5/8-inch Nickel-plated Compression Female Flange Sink Bibbs and 5/8-inch Side Arm Wash Tray Bibbs and Hardwood Drain Board.

Length Over All, 50 inches.
Sink Inside, 21 inches.
Depth, 7½ inches.

Width Over All, 23 inches.
Tub Inside, 22 inches.
Depth, 13½ inches.

Back, 5½ inches.

Price, as described, Class A..... 77.90
" " " " B..... 54.60

This fixture is especially adapted for small apartments where space is limited.

PORCELAIN LAUNDRY TRAYS

WITH INTEGRAL BACK

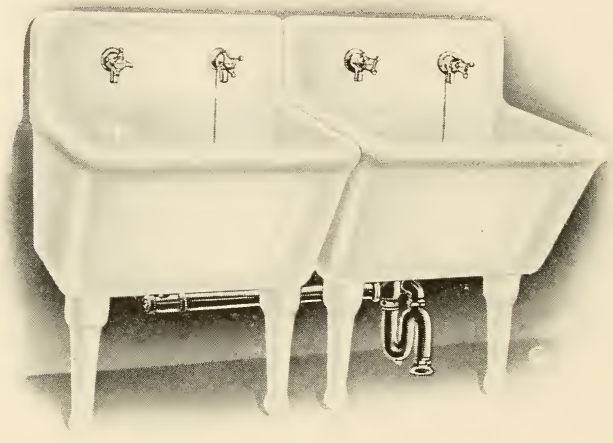


Plate E2481

Porcelain Laundry Trays with Integral Backs, set on Porcelain Legs, with Wall Straps, fitted with Nickel-plated Compression Bibbs, Nickel-plated Brass Waste Plugs and Couplings, Nickel-plated Continuous Waste and Trap with Vent to Wall.

Tray Outside, 26x26 inches.	Depth Inside, 15 inches.
Tray Outside, 29x26 inches.	Depth Inside, 15 inches.
Tray Outside, 36x26 inches.	Depth Inside, 15 inches.

Sizes	26x26	29x26	36x26
Price, as described, Set of Two, Class A	98.80	106.80	114.80
" " " " " " " B	75.60	81.20	86.80
" " " " " " "Continental" or "Buff" Ware	69.50	73.50	78.50
" Tray only, with Legs and Wall Supports, Class A, each	38.75	42.75	46.75
" " " " " " " " " B, "	27.15	29.95	32.75
" " " " " " " " "Continental" or "Buff" Ware	24.10	26.10	28.60
Price, Waste, Trap, Plugs and Couplings for Two Trays		16.30	
" Bibbs, per pair		2.50	

"Continental" or "Buff" Ware is solid porcelain with the glaze applied directly on the body and not after an application of ground vitreous china, which gives this material its white color. Although not as attractive a color as the pure white, the "Buff" Ware is very serviceable and will not readily show dirt.

PORCELAIN LAUNDRY TRAYS

ALL ROLL RIM

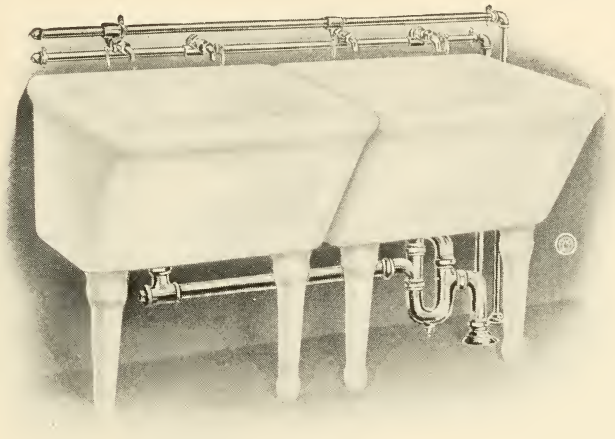


Plate E2491

Porcelain Laundry Trays, all Roll Rim, set on Porcelain Legs, with Wall Straps, fitted with Nickel-plated Fuller Faucets, Nickel-plated Brass Waste Plugs and Couplings, Nickel-plated Continuous Waste and Trap with Vent to Wall.

Tray Outside, 24x24 inches. Depth Inside, 14½ inches.
Tray Outside, 24x26 inches. Depth Inside, 14½ inches.
Tray Outside, 25x29 inches. Depth Inside, 14½ inches.
Tray Outside, 24x36 inches. Depth Inside, 15 inches.

Sizes ..... inches	24x24	24x26	25x29	24x36
Price, as described, Set of Two, Class A	68.50	70.20	71.80	95.20
" " " " " " " B	55.00	56.20	57.30	75.70
" " " " " " " Continental or Buff Ware	51.70	52.50	53.30	67.50
" Tray only, with Legs and Wall Supports, Class A ..... each	22.60	23.45	24.25	35.95
" Tray only, with Legs and Wall Supports, Class B ..... each	15.85	16.45	17.00	26.20
" Tray only, with Legs and Wall Supports, Continental or Buff Ware ..... each	14.20	14.60	15.00	22.10

Price, Waste and Trap, for Two Trays	10.00
" Plugs and Couplings, for each Tray	1.15
" Faucets ..... per pair	3.50

Supply pipes extra.

Continental or Buff Ware is solid porcelain with the glaze applied directly on the body and not after an application of ground vitreous china, which gives this material its white color. Although not as attractive a color as the pure white, the Buff Ware is very serviceable and will not readily show dirt.

PORCELAIN LAUNDRY TRAYS

Plate E2501

Porcelain Two-part Laundry Tray with Integral Partition, Porcelain Legs and Wall Supports, Nickel-plated Compression Bibbs with China Indexed Handles and Nickel-plated Waste Plugs and Couplings and Trap.

Length Over All, 46 inches. Width Over All, 24 inches.
Tubs Inside, 20x20x15¾ inches Deep.

	Class A	Class B	Buff
Price, as described	47.15	38.80	35.35
" less Bibbs, Plugs and Trap	33.35	25.00	21.55

ENAMELED IRON SINK AND LAUNDRY TRAY COMBINATIONS

IN ONE PIECE

(Patented)

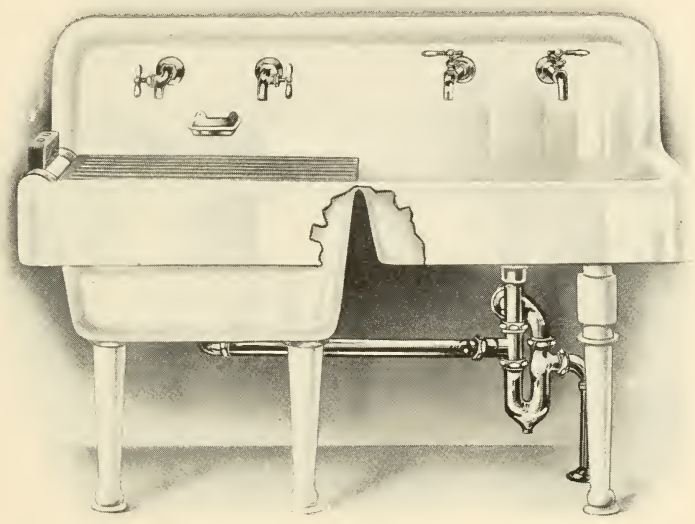


Plate E2511

Enameled Iron Combination Sink and Laundry Tray: Sink, Laundry Tray, Apron and Recess Back all in one piece, Concealed Wall Hangers, Three Painted Adjustable Legs with Three Coats White Enamel Paint, Laundry Tray with Nickel-plated Fuller Bibbs, Nickel-plated Soap Dish and Waste Plug with Rubber Stopper, Sink with Nickel-plated Fuller Bibbs, Cast Brass Strainer Top Plug and Combination Ash Tray Cover and Drain Board, Nickel-plated Continuous Waste and Trap with Vent.

Sink: Length Inside, 22 inches; Width Inside, 17½ inches; Depth Inside, 7 inches.
Tray: Length Inside, 22 inches; Width Inside, 17½ inches; Depth Inside, 14 inches.

Length Over All, 50 inches; Width Over All, 22 inches; Back, 10 inches; Apron, 6 inches

Price, as described..... 66.00
" without Bibbs, Waste and Trap..... 50.00

If with Hardwood Wringer Holder, add..... 1.75

This combination is also made with Laundry Tray on Right-Hand Side and Sink on Left-Hand Side.

Note that the sink and tray, while being cast integral, each has a partition with a space between. This prevents any damage to the enamel from expansion and contraction when the tray is filled with hot water and the sink with cold water, or vice versa.

ENAMELED IRON LAUNDRY TRAYS

ROLL RIM—ONE PIECE

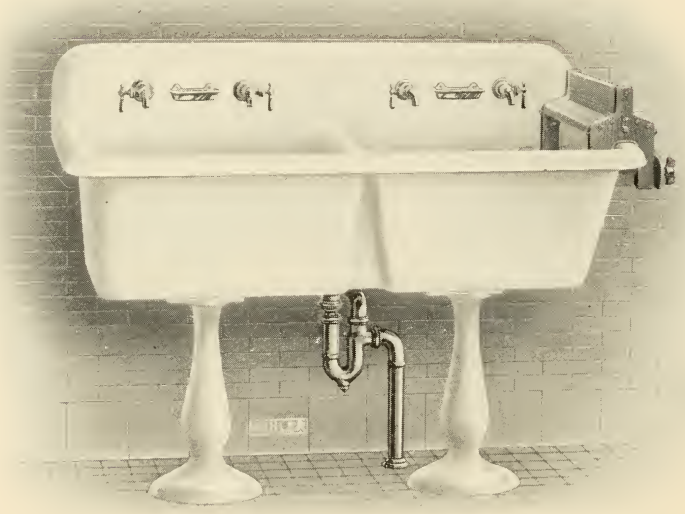


Plate E2522

Enameled Iron Roll Rim Duplex One-piece Laundry Tray, Enameled Iron Pedestals, Nickel-plated Fuller Bibbs, 1½-inch Two-branch Special Waste with 1½-inch Vented "S" Trap, Nickel-plated Soap Cups and Wooden Wringer Holder and Nickel-plated Waste Plugs with Rubber Stoppers.

Front to Back: Inside, 21¼ inches; Outside, 26⅝ inches. Depth Inside, 14¼ inches.
Length Over All, Two Sections, 52¾ inches. Length, each Section, 23 inches.
Height of Back, 8 inches. Floor to Top of Rim, 34 inches.

Price as described, Enameled Inside..... **92.80**
" with Soap Cups and Waste Plugs only, Enameled Inside..... **64.00**

If wanted drilled for overflow specify when ordering.

ENAMELED IRON LAUNDRY TRAYS

ROLL RIM

Plate E2531

Enameled Iron Roll Rim Laundry Trays with Integral Backs, Iron Pedestals, Nickel-plated Soap Dishes, Wood Wringer Holder, Waste Plugs and Couplings, Nickel-plated Fuller Adjustable Flanged Bibbs, Continuous Waste and "S" Trap with Vent.

Width Inside, 22½ inches.	Length Inside, 22¾ inches.
Width over Rim, 26¾ inches.	Length over Rim, 27½ inches.
Depth Inside, 14¼ inches.	Back, 14 inches.

	One-Section	Two-Section	Three-Section
Price, as described, Enameled Inside	.....	121.10	171.90
" less Bibbs, Waste and Trap	50.75	92.20	133.60
If Enameled All Over, add	19.75	36.20	59.00

Add for Ball Bearing Wringer 8.00

ENAMELED IRON LAUNDRY TRAYS

FLAT RIM

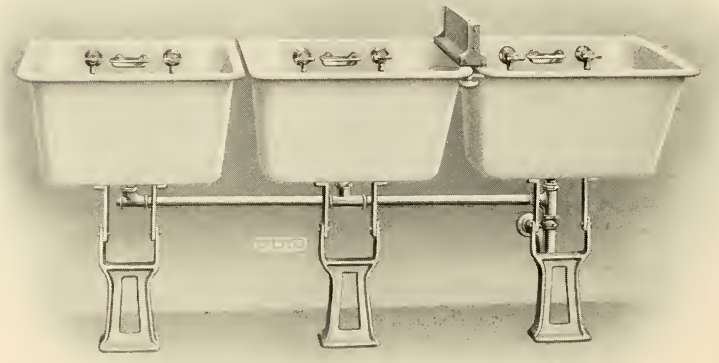


Plate E2541

Enameled Iron Flat Rim Laundry Trays, Painted Iron Pedestals, Nickel-plated Brass Soap Dishes, Wood Wringer Holder, Waste Plugs and Couplings, Nickel-plated Compression Wash Tray Bibbs, Nickel-plated Brass Continuous Waste and Vented S Trap.

Front to Back over Rim, 14 inches Length over Rim, 26 inches
Front to Back Inside, 21¾ inches Length Inside, 23 inches
Depth Inside, 14¼ inches

	One-Section	Two-Section	Three-Section
Price, as described, Enameled Inside	.....	**63.30**	**90.40**
" less Waste, Bibbs, Trap and Wringer Holder	**18.50**	**37.00**	**55.50**

If wanted drilled for overflow, specify in ordering.

ENAMELED IRON LAUNDRY TRAYS

FLAT RIM

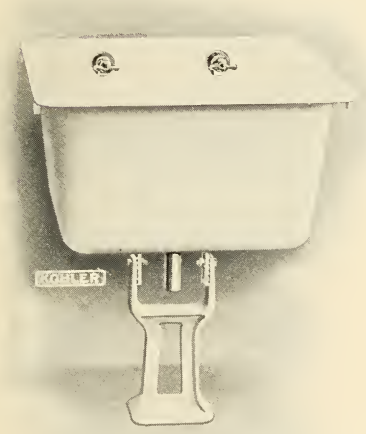


Plate E2551

Plate E2552

PLATE E2551

Enameled Iron Flat Rim Laundry Tray on Painted Iron Adjustable Standard, Nickel-plated Compression Bibbs, 1½-inch Tail Piece, Waste Plug and Stopper.

Length Outside, 24 inches. Width Outside, 20 inches.
Length Inside, 21¼ inches. Width Inside, 17¼ inches.
Depth, 13¼ inches.

Price, as described..... 17.50
" without Bibbs..... 15.00

The height of the tray can be adjusted from 29¼ to 34 inches from floor. Arranged for setting in batteries of two or more.

PLATE E2552

Enameled Iron Flat Rim Laundry Tray on Concealed Wall Hanger, Nickel-plated Compression Bibbs, 1½-inch Tail Piece, Waste Plug and Stopper.

Length Outside, 24 inches. Width Outside, 20 inches.
Length Inside, 21¼ inches. Width Inside, 17¼ inches.
Depth, 13¼ inches.

Price, as described..... 16.50
" without Bibbs..... 14.00

ALBERENE SOAPSTONE LAUNDRY TRAYS

WITHOUT BACK

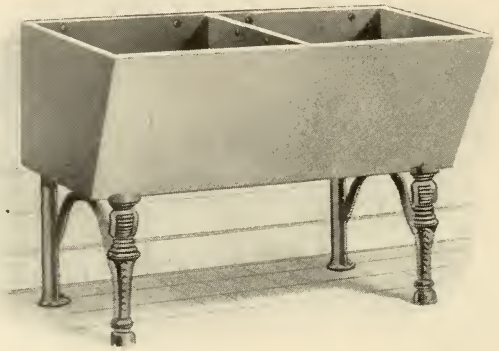


Plate E2561

Width Outside 24 inches Depth Outside 16 inches

Length.....feet	2	2½	3	4	4½	5
Price, Two-part, Tray Only	....	....	....	13.90	18.40	22.20
" One " " "	9.75	11.25	12.75	...	....	....

WITH BACK

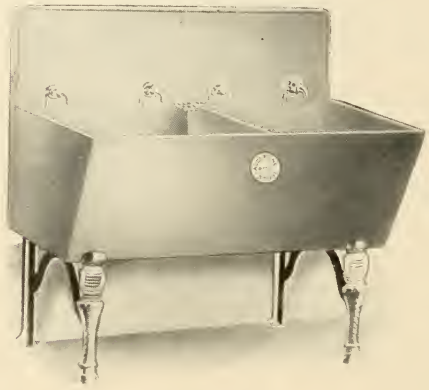


Plate E2562

Width Outside 24 inches Depth Outside 16 inches

Length.....feet	4	4½	5
Price, Two-part Tray Only, 6-inch Back	19.50	22.00	24.50
" " " " " 12 " "	21.50	24.00	26.75
" " " " " 16 " "	22.50	25.00	28.25

EXTRAS

Legs: Painted each, 70; Galvanized each, 1.40.
Waste Plugs: Plain each, .35; with Locknut and Coupling each, 1.00;
Soap Dishes each, .65; Twin Waste, 1.50; Bibbs extra.

ALBERENE STONE LAUNDRY TRAYS

WITHOUT BACK

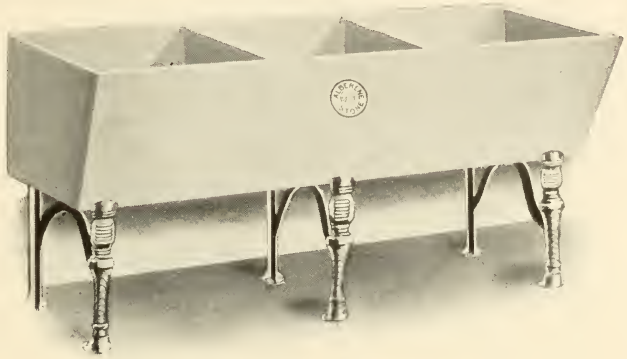


Plate E2571

	Width Outside 24 inches	Depth Outside 16 inches				
Length.....feet	6	6½	7	7½	8
Price, Three-part Trays Only.....	28.00	32.00	35.00	41.00	61.00

WITH BACK

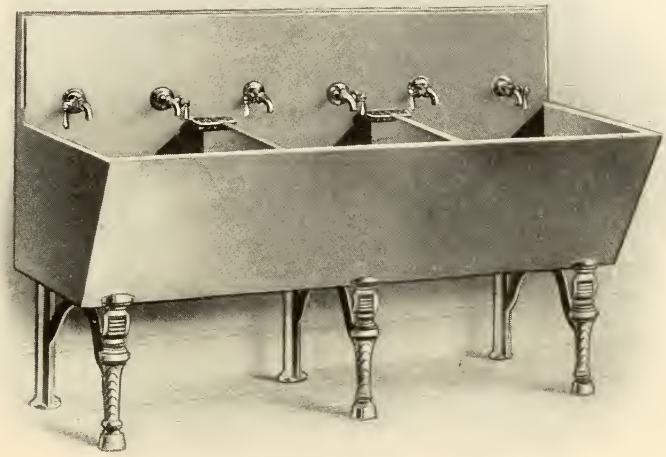


Plate E2572

	Width Outside 24 inches	Depth Outside 16 inches			
Length.....feet	6	6½	7	7½
Price, Three-part Tray Only, 12-inch Back.....	33.00	38.00	41.00	48.50
" " " " " 16 " "	35.00	40.00	44.00	51.50

EXTRAS

Legs, Painted, each .70; Galvanized, each 1.40.
Waste Plugs, Plain, each .35; with Locknut and Coupling, each 1.00.
Soap Dishes, each .65; Bibbs extra.

GRANITINE LAUNDRY TRAYS

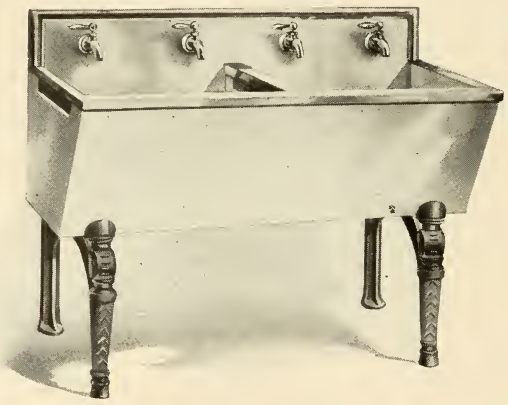


Plate E2581

These trays are made of a snow-white granitine composition, cast in one solid piece with rounded inside corners, without joints or seams, affording no place for germs to settle, thus making it sanitary in every respect. Twin waste connection is furnished for two-part trays.

TWO-PART, WITH 6-INCH BACK

No.	Length Inches	Width Inches	Depth Inches	Price Each
116	48	24	16	15.00
117	54	24	16	17.50
118	60	24	16	19.00

THREE-PART, WITH 6-INCH BACK

120	72	24	16	25.00
121	80	24	16	28.00
122	90	24	16	32.00

TWO-PART, WITHOUT BACK

16	48	24	16	13.00
17	54	24	16	14.50
18	60	24	16	16.00

THREE-PART, WITHOUT BACK

20	72	24	16	20.50
21	80	24	16	23.00
22	90	24	16	29.00

Prices include metallic rim, twin waste connection, rubber plugs and metallic wringer guards. Legs extra, per pair: Painted, 1.70; galvanized, 2.80.

GRANITINE LAUNDRY TRAYS

Plate E2591

These trays are made by a process of cement waterproofing of Portland cement and crushed granite stone. The cement waterproofing presents a superior slate color and a very smooth surface. They are made in one piece with rounded inside corners, without seams or joints, thus rendered sanitary and easy to keep clean. Twin waste connection is furnished for two-part trays.

TWO-PART, WITH 6-INCH BACK

No.	Length Inches	Width Inches	Depth Inches	Price Each
106	48	24	16	14.00
107	54	24	16	16.50
108	60	24	16	18.00

THREE-PART, WITH 6-INCH BACK

110	72	24	16	22.00
111	80	24	16	25.00
112	90	24	16	27.00

ONE-PART, WITHOUT BACK

2	25	24	16	6.00
3	27	24	16	6.50
4	31	24	16	7.00

TWO-PART, WITHOUT BACK

6	48	24	16	10.00
7	54	24	16	11.50
8	60	24	16	12.00

THREE-PART, WITHOUT BACK

10	72	24	16	16.00
11	80	24	16	18.00
12	90	24	16	19.00

Prices include metallic rim, twin waste connection, rubber plugs, metallic wringer guards. Legs extra, per pair: Painted, 1.40, galvanized, 2.80

LAUNDRY TRAY FITTINGS

1½-INCH LAUNDRY TRAY WASTE AND TRAPS

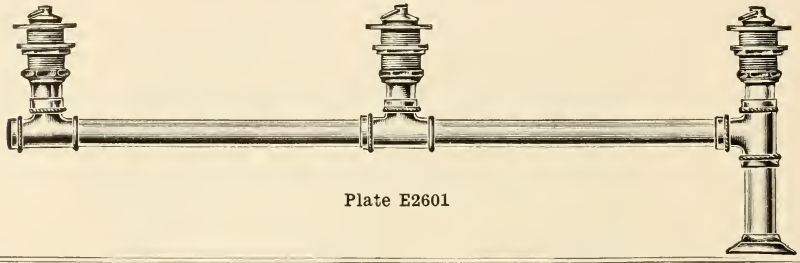


Plate E2601

Style	Rough	Finished	Nickel-plated
Price, Two Trays with Plugs	6.35	7.80	8.50
" Three " " "	10.00	11.95	13.00
" each Additional Tray, add	3.65	4.15	4.50
" Straight Waste to Floor	1.00	1.00	1.00
" "S" Trap Vented	4.50	5.45	5.60
" "S" " not Vented	3.50	4.25	4.40
" "P" " Vented	4.20	5.10	5.25
" "P" " not Vented	3.20	3.90	4.05
Deduct for each Plug not Furnished	1.00	1.15	1.25

No. 180 WASH TRAY PLUG

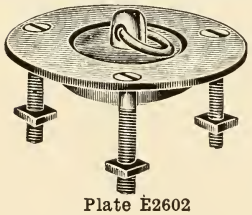


Plate E2602

No. 181 WASH TRAY PLUG

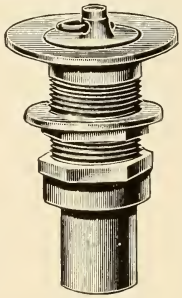


Plate E2603

LAUNDRY TRAY LEG

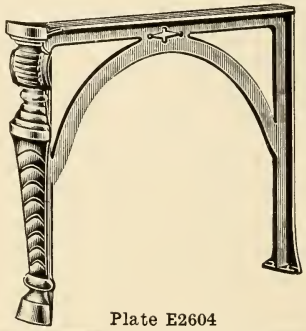


Plate E2604

Price, No. 180, Fin. Brass Plugs with Bolts	each	.35
" " 181 " " " " Locknut and Coupling	"	.80
" Legs, Painted Iron	"	.70
" " Galvanized	"	1.40

HARDWOOD LAUNDRY TRAY COVERS FOR ALBERENE TRAYS

Length ..... feet	2 and 2½	4	4½ and 5	6 and 6½	7 and 7½
Price	3.00	5.00	6.00	7.50	9.00

WASH TRAY TEE

Plate E2605

WASH TRAY TEES

Size ..... inches	½	¾	¾x½
Price, Galv. Iron ..... each	.20	.30	.30
" Rough Brass ..... "	.90	...	...
" Finished Brass ... "	1.80	...	...

SOAP DISH FOR ALBERENE TRAY

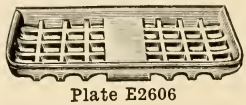


Plate E2606

SOAP DISHES FOR ALBERENE TRAYS

Price, Galvanized Iron	each	.50
" Nickel-plated Spun Brass for Enamel Trays	"	.50

PORCELAIN URINAL STALLS

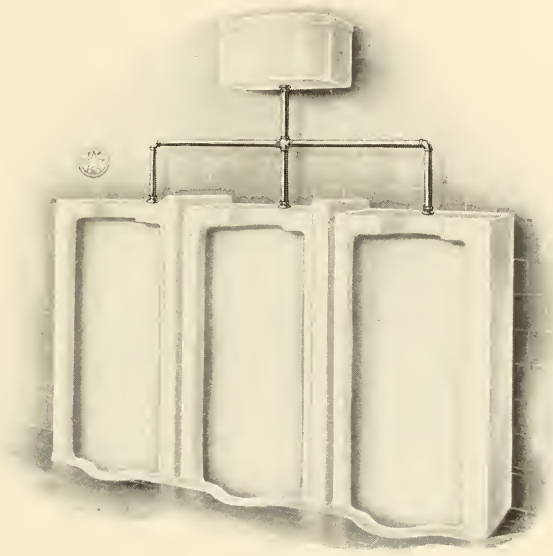


Plate E2611

Porcelain Urinal Stalls, each Stall Complete in One Integral Piece, including Seam Cover, Glazed Pure White All Over, Vitreous China Tank with Automatic Flushing Fittings, Nickel-plated Three-way Flush Pipe, Nickel-plated Spreaders, Locknuts and Strainers.

Made in two sizes, 18 and 24 inches wide.

No. 1. Width Over All, Single Stall, 18 inches; Width Over All, Two-part, 37 inches.

No. 2. Width Over All, Single Stall, 24 inches; Width Over All, Two-part, 49 inches.

Height Over All, 48 inches.
Height from Floor Line to Top, 44 inches.
Extreme Front of Lip to Wall, 18½ inches.

	Class A	Class B
Price, 18-inch, Two-part, as described	132.10	106.45
" 24 " " " " "	160.60	136.40
Add for each additional 18-inch Stall Complete	57.85	45.00
" " " " 24 " " "	72.10	55.00
Price, 18-inch, Three-part, without Fittings	161.25	120.75
" 24 " " " "	206.25	152.25
" 18 " Two " " "	107.50	80.50
" 24 " " " "	137.50	101.50
Add for each additional 18-inch Stall without Fittings	53.75	40.25
" " " " 24 " " " "	68.75	50.75

Price, Vitreous China Tank with Automatic Fittings	19.80
" N. P. Flush Connections, Two-part	4.00
" " " " Three "	6.25
" " Fan Spreaders with Slip Nut, each	2.15

These urinals may be furnished with hood vent if desired. Add to list, each stall: Class A, 5.00; Class B, 3.50.

PORCELAIN URINAL STALLS

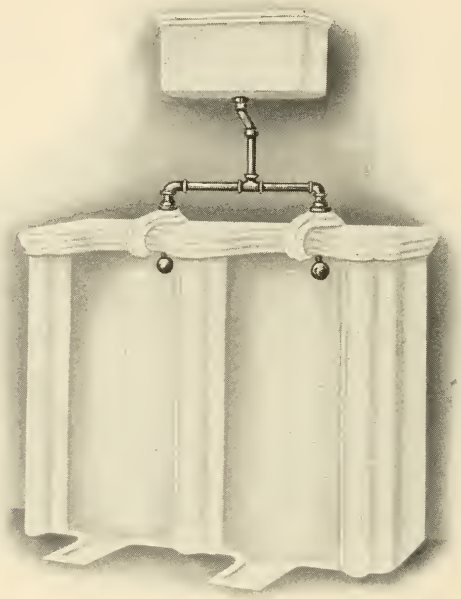


Plate E2621

Porcelain Urinal Stalls with Side Slabs, Floor Slabs, Front Columns, Low Top Pieces and Seam Covers, Glazed White, Vitreous China Flush Tank with Automatic Flushing Fittings, Nickel-plated Brass Spreaders, with Flush Connections and Nickel-plated "T" Connection and Flush Pipes to Tank; Nickel-plated Urinal Strainers and Floor Flanges.

Height from Floor to Top of Stalls, 40¾ inches.
Width Over All: Two-stall, 5 feet; Three-stall, 7 feet; Four-stall, 9 feet.
For every additional part, add 2 feet for over all dimensions.

	Class A	Class B
Price, Two-part, as described	163.45	123.55
Add for each additional Stall, Complete	68.75	50.25
Price, Single Stall without Fittings	75.00	52.50
" Two-part " "	140.00	98.00
Add for each additional Stall Without Fittings	65.00	45.50
Price, Vitreous China Tank with Automatic Fittings		19.80
" N. P. Spreaders with Slip Nut, each		2.40
" " Flush Connection, One-part		2.80
" " " " Two "		4.00
" " " " Three"		6.25
" " " " Four "		9.40

These urinals may be furnished with hood vent if desired. Add to the list of each stall: Class A, 5.00; Class B, 3.50.

BATTERY OF SOLID PORCELAIN URINALS

Plate E2631

Battery of Three Solid Porcelain Urinal Stalls, Glazed All Over, Nickel-plated Push Button Flush Valve, Nickel-plated Spreader and Nickel-plated Floor Strainer.

Made in three sizes, 18, 24 and 28 inches wide.

Height Over All, 48 inches; Height from Floor Line, 44 inches.

Extreme Front of Lip to Wall, 20½ inches.

	Class A	Class B	Class A	Class B	Class A	Class B
Size	18	18	24	24	28	28
Price, Three-stall, as described	158.55	124.35	201.30	154.35	215.55	164.25
" Two " " "	105.70	82.90	134.20	102.90	143.70	109.50
" One " " "	52.85	41.45	67.10	51.45	71.85	54.75
" Single " without Fittings	40.00	28.00	55.00	38.50	60.00	42.00

If with Integral Front Shield, add, Class A 5.00, Class B 3.50.

These urinals may be furnished with hood vent if desired. Add to list, each: Class A, 5.00; Class B, 3.50.

SOLID PORCELAIN URINALS

Plate E2641

Battery of Three Solid Porcelain Urinal Stalls with Integral Front Shield, Glazed All Over, Nickel-plated Push Button Flush Valve, Nickel-plated Spreader and Nickel-plated Floor Strainer.

Made in two sizes, 18 and 24 inches wide.

Height Over All 41¼ inches Height from Floor Line 37½ inches
Extreme Front of Lip to Wall 15 inches

	Class A	Class B	Class A	Class B
Sizes	18	18	24	24
Price, Three-stall, as described	**152.85**	**124.35**	**172.80**	**135.75**
" Two " " "	**101.90**	**82.90**	**115.20**	**90.50**
" One " " "	**50.95**	**41.45**	**57.60**	**45.25**
" Single " without Fittings	**38.00**	**28.00**	**45.00**	**32.00**

These urinals may be furnished with hood vent if desired. Add to list each: Class A, 5.00; Class B, 3.50.

PORCELAIN URINAL STALLS

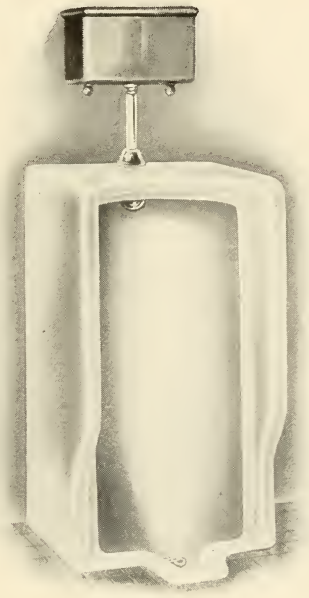


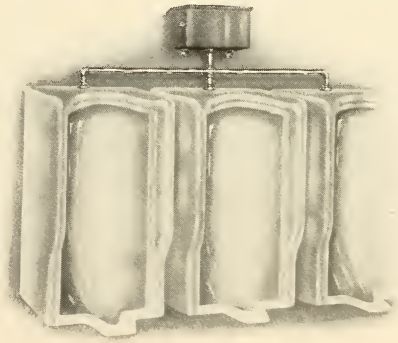
Plate E2651

Porcelain Urinal Stall with Integral Shields and Extended Drip Receptor, Oak Copper-lined Tank with Automatic Flush Fittings and Angle Brackets, Nickel-plated Flush Pipe and Spreader, and Outlet Connection with Nickel-plated Removable Strainer.

Made in two sizes, 18 and 24 inches wide.

Size ..... inches	Class A 18	Class B 18	Class A 24	Class B 24
Price, 1-stall as described	68.00	56.00	83.00	64.00
" 2- " " "	128.00	101.00	158.00	122.00
" 3- " " "	190.00	149.50	235.00	181.00
" 1- " less Fittings	45.00	31.50	60.00	42.00

Add to list for Vitreous China Tank, 1 and 2-stall	6.00
Add to list for Vitreous China Tank, 3-stall	11.00



Any number of stalls may be set in battery as illustrated. All exposed surfaces are glazed and a space of at least 6 inches should be allowed between stalls.

PORCELAIN URINAL STALLS

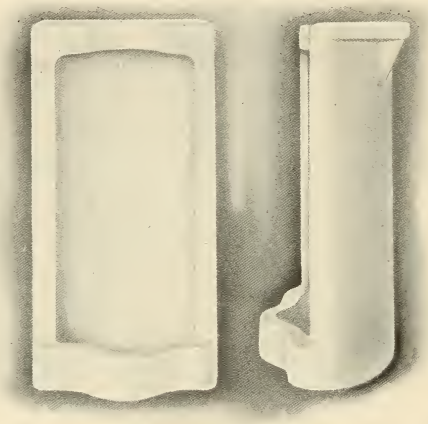


Plate E2661

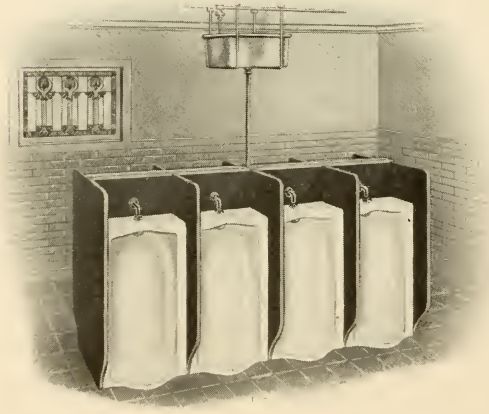
Solid Porcelain Urinal Stall to tile into floor and to be encased between slate or marble partitions.

No. 1, Height Over All, 46½ inches; Height Above Floor Line, 42½ inches; Width, 18 inches
" 2 " " " 48 " " " " " 44 " " 24 "
" 3 " " " 48 " " " " " 44 " " 28 "

Wall to Front at Base, Nos. 1 and 2, 19 inches; No. 3, 23½ inches.

Sizes	No. 1	No. 2	No. 3
Price, Urinal Only, Class A	**40.00**	**50.00**	**60.00**
" " " " B	**28.00**	**35.00**	**42.00**

If with Hood Vent add to list, Class A, 5.00; Class B, 3.50.



Price, Nickel-plated Fan Spreader with Slip Joint Nut .....each **2.15**
Price, Nickel-plated Outlet Strainer for Lead Pipe.....each **2.35**
Price, Nickel-plated Outlet Strainer for Iron Pipe.....each **3.50**
Price, Nickel-plated Push Button Flush Valve with Stop .....each **16.00**

On special order these urinals can be furnished in buff ware. Prices on application.

MODE OF INSTALLATION

These stalls are made with rough outside and can only be properly set in batteries where a partition is used. These partitions may be made of slate or marble as desired.

VITREOUS CHINA PEDESTAL URINALS

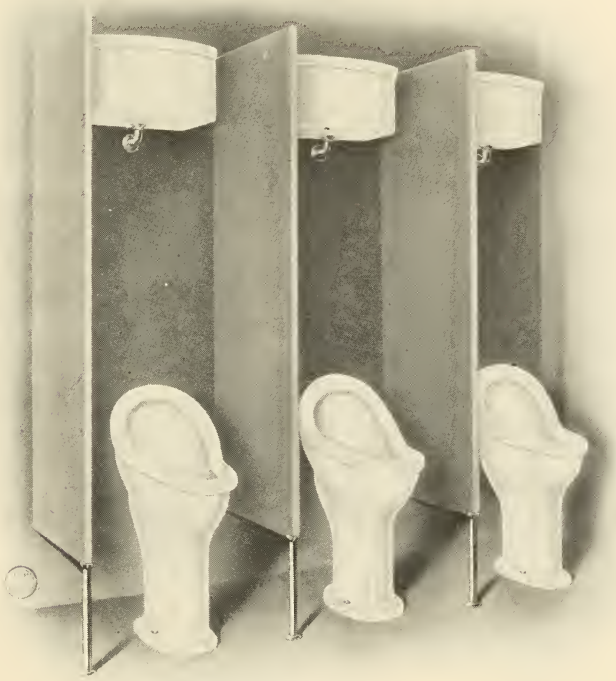


Plate E2671

Three-Stall Vitreous China Pedestal Urinals with Vitreous China 3-gallon Automatic Flush Tank with Fittings, Concealed Wall Hangers and Nickel-plated Flush Elbows.

Height from Floor to Top, Over All, 29½ inches. Floor to Top of Lip, 20¾ inches.
Width across Back, 13½ inches.

Price, Single Syphon Jet Urinal with Tank, as described	34.80
" Syphon Jet Pedestal Urinal only	25.00
" Wash Down " " "	23.00
" 3-gallon China Tank only, with Fittings	18.30

Flush pipes not included in above prices.
Slate or marble walls extra. Prices on application.

URINAL STALLS

SLATE OR MARBLE

Plate E2681

Two-Stall Urinal with Two No. 2 Porcelain Lipped Urinals, Nickel-plated Inlet Connections, Nickel-plated Urinal Traps, Oak, Round Cornered Automatic Urinal Tank with Nickel-plated Iron Brackets, Nickel-plated Brass Flush Pipe 2 feet long with Double Couplings, 7/8-inch Back and Capping Polished One Side, 7/8-inch Ends and Partition Polished Both Sides, 2-inch Countersunk Base, Nickel-plated Clamps and Bolts.

Dimensions: Height, 5 or 5½ feet; Center to Center of Partitions, 2 feet; Depth of Partitions, 20 in.; Depth of Ends, 26 in.; Space Back of Stalls, 6 in. Base projects 2 in.

Kind of Stalls	Italian Marble		Slate	
Height of Stalls ..... feet	5	5½	5	5½
Price, as described, 2-Stall, with 1-gallon Tank.	107.70	113.50	90.30	94.75
" " " 3 " " 2 " " .	148.50	156.25	124.50	130.50
" " " 4 " " 3 " " .	190.00	200.00	160.00	167.50
" " " 5 " " 3 " " .	231.75	242.75	195.00	204.25
" " " 6 " " 4 " " .	272.00	285.75	229.00	239.50
" " " 7 " " 4 " " .	309.50	325.25	260.00	272.25
" " " 8 " " 6 " " .	352.00	370.00	296.50	310.25
" " " 9 " " 6 " " .	392.00	412.00	330.00	340.50
" " " 10 " " 8 " " .	435.25	457.00	366.50	383.50

If with Cast Brass Combination Brackets, add, per pair, .75. Extra for Lead Lined Tank. If space behind back is not required, capping is deducted and ends are furnished 20 inches instead of 26 inches.

SLATE URINAL STALLS

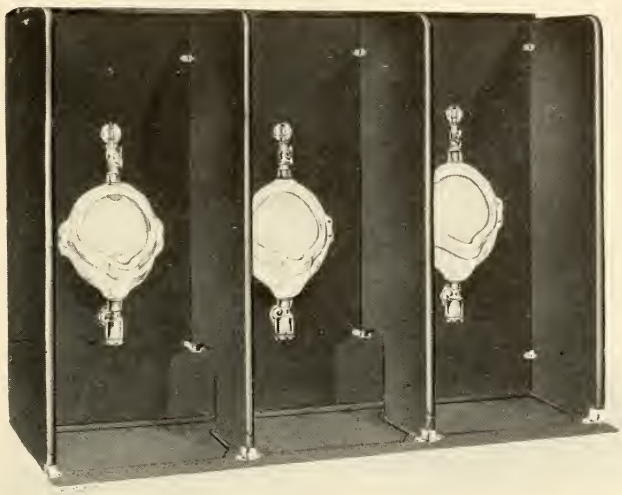


Plate E2691

Three-Stall Slate Urinal with 1-inch Ends and Partitions, Finished Both Sides, 1-inch Back Finished One Side, 7-inch Capping Covering Working Space for Connections, and 2-inch Countersunk Base, Fitted with Nickel-plated Brass Clamps and Bolts, No. 2 Flat Back Lipped Earthenware Urinals, Nickel-plated Bolts and Washers, Nickel-plated Compression Urinal Cocks with Flange, Nut and Bent Coupling, Nickel-plated Cast Brass Urinal Traps with Vent.

Dimensions: Height, 5 or 5½ feet; Center to Center of Partitions, 2 feet; Depth of Partitions, 20 inches; Depth of Ends, 26 inches; Space Back of Stalls, 6 inches. Base projects 2 inches.

Height of Stalls.....feet	5	5½
Price, as described, Three-Stall.....	148.85	156.85
" each Additional Stall.....	43.95	45.95
If less than Three Stalls, deduct, each Stall.....	43.95	45.95

If with Loose Key Compression Urinal Cocks, add, for each Cock..... .60
" " Boston Pattern Self Closing Urinal Cocks add, for each Cock... 1.15

This Urinal Stall also furnished in Italian or Tennessee Marble. Prices on application.

URINAL STALLS

SLATE OR MARBLE

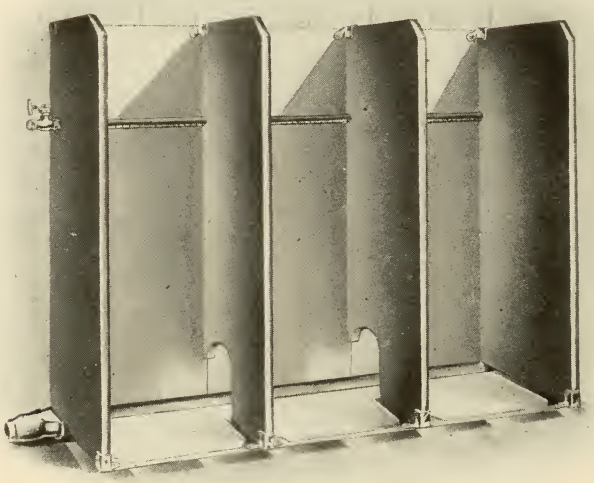


Plate E2701

Three-Stall Slate or Marble Urinal, Partitions and Rabbeted Back, 1½-inch Countersunk Base, Polished Brass Clamps and Bolts, Polished Brass Perforated Wash Down Pipe with Loose Key Stop and Cast Iron Galvanized Gutter with Straight Outlet Connection.

Description	Slate	Tennessee Marble	Italian Marble
Price, as described, 5 ft. High, Three-Stall	86.75	110.25	120.25
Additional Stalls, Continuous, 5 ft. High, add..each	27.00	31.25	34.00
Two Stalls only, deduct for One Stall from Three-Stall List, 5 ft. High....	27.00	31.25	34.00
One Single Stall, as described above, 5 ft. High.each	38.00	45.00	49.25
Price, as described, 5½ ft. High, Three Stalls	92.00	117.25	128.25
Additional Stalls, Continuous, 5½ ft. High, add.each	28.50	33.00	36.25
Two Stalls only, deduct for One Stall from Three-Stall List, 5½ ft. High..	28.50	33.00	36.25
One Single Stall, as described above, 5½ ft. High.each	40.25	48.00	52.75

Unless otherwise ordered, Urinal with Outlet and Supply on Left-Hand End, as shown, will be sent.

Can also be furnished with Outlet in Centre or on Right-Hand End, or with Bent Outlet.

Gutter can also be furnished of Enameled Iron. Prices upon application.

Can also be furnished with Oak or Pine Automatic Flushing Tank, either Tinned Copper Lined or Lead Lined, prices varying according to capacity of Tank required for the different number of Stalls. Prices upon application.

When ordering, be particular to give location of Outlet and Supply, whether Right or Left-Hand End, or with Outlet in Center.

URINAL STALLS

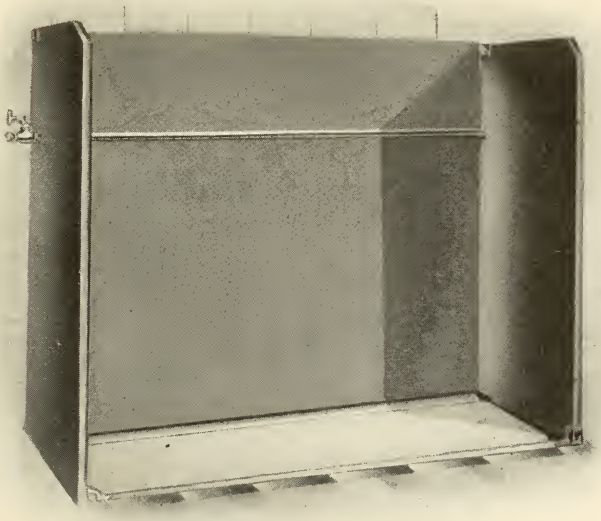


Plate E2711

Single Slate or Marble Urinal Stall with ⅞-inch Back and Ends, without Center Partitions, 1½-inch Countersunk Base, Galvanized Cast Iron Gutter with Outlet Connection, Perforated Wash Down Pipe and Loose Key Stop, and Brass Clamps and Bolts.

Height Feet	Length Feet	Price, Each		
		Slate	Tennessee Marble	Italian Marble
5	2	35.00	43.50	47.75
5	4	51.25	64.00	69.75
5	6	70.50	86.00	93.25
5	8	86.75	106.50	115.25
5	10	106.00	128.50	138.75
5	12	125.50	150.75	162.50
5½	2	37.25	46.25	50.75
5½	4	54.25	67.50	73.50
5½	6	74.25	100.25	107.75
5½	8	91.25	121.50	130.50
5½	10	111.25	144.25	154.75
5½	12	131.50	165.50	177.50

Can be made of any length, height and depth to suit requirements.

Can also be furnished with automatic flushing tank, prices varying according to capacity of tank required for the different lengths of the stalls.

ENAMELED IRON URINALS

Plate E2721

Enameled Iron Roll Rim Lipped Urinal with Integral Back, Concealed Hangers, Brass Bee-hive Strainer, Finished Brass Perforated Flush Pipe with Loose Key Stop and 1¼-inch Nickel-plated Bag Trap.

Size .....feet	2	2½	3	3½	4	5
Number of Lips.....	1	1	2	2	2	3
Price, as described, Enameled Inside.....	32.50	36.25	40.00	43.85	47.55	58.50
" without Flush Pipe, Stop and Trap, Enameled Inside.....	22.70	26.05	29.40	32.75	36.05	46.10

ENAMELED IRON URINALS

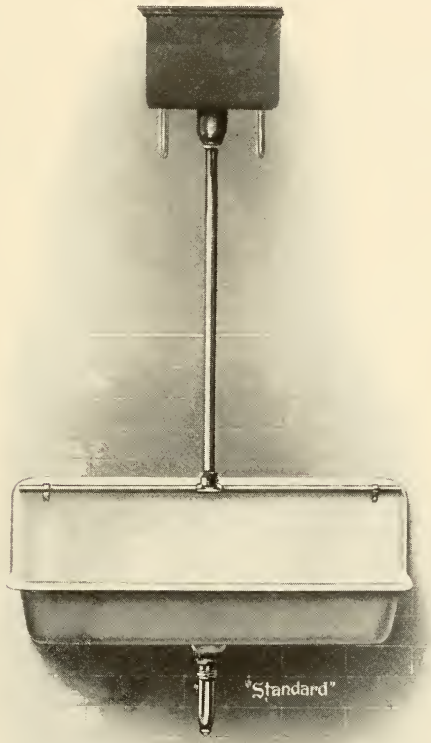


Plate E2731

Enameled Iron Roll Rim Urinal with Integral Back, Concealed Wall Hanger, Automatic Wood Tank complete with Brass Fittings, Nickel-plated Brass Flush Pipe connected to Perforated Brass Wash Down Pipe, Brass Beehive Strainer and 1½-inch Nickel-plated Trap.

Length .....feet	2	2½	3	3½	4	5
Price, as described Enameled Inside.....	**52.00**	**60.00**	**63.00**	**66.00**	**70.00**	**79.00**
" Urinal Only " "	**17.00**	**19.50**	**22.00**	**24.50**	**27.00**	**34.50**

Furnished only with center outlet.

Waste coupling for lead pipe is furnished on urinal ordered without trap.

VITREOUS CHINA URINALS

FLAT BACK SYPHON JET

TOP SUPPLY AND BOTTOM OUTLET

Plate E2741

INTEGRAL INLET AND OUTLET

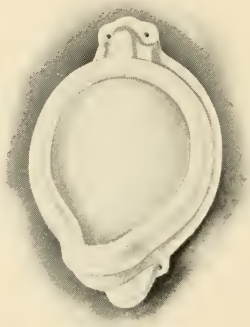


Plate E2742

Price, with Top and Bottom Supply, with Spuds only	16.00
" " Integral Inlet and Outlet, without Spud	15.00

Couplings extra.

BEDFORDSHIRE URINALS

FLAT BACK WITH LIP

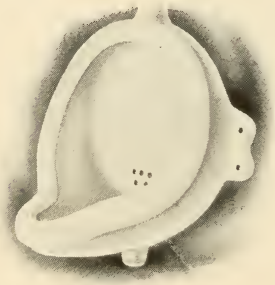


Plate E2743

CORNER WITH LIP

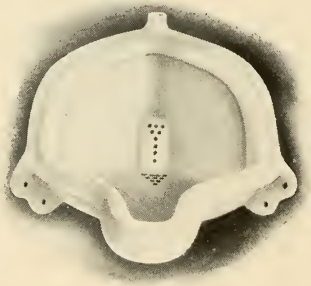


Plate E2744

FLAT BACK WITH LIP

Number	1	2	3
Size, Extreme Dimensions, including Tabs ..... inches	18x21	16¼x19	14¾x18
" Front to Back ..... "	14½	12½	11½
Price, without Spuds	10.00	8.00	7.00

CORNER WITH LIP

Number	1	2	3
Size, Front of Lip to Corner ..... inches	19½	17½	16½
" Height Over All ..... "	15¾	14½	14
Price	10.00	8.00	7.00

URINAL COCKS

COMPRESSION

FOR IRON PIPE

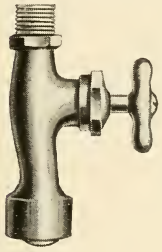


Plate E2751

S. O. T.

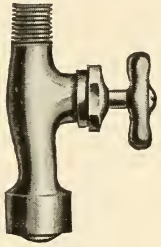


Plate E2752

FOR LEAD PIPE

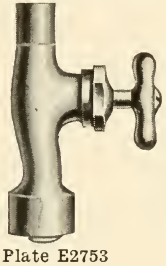


Plate E2753

Size	inches	½
Price, for Iron Pipe, Finished	per dozen	27.00
" " " " Nickel-plated	"	30.60
" S. O. T., Finished	"	27.00
" " Nickel-plated	"	30.60
" for Lead Pipe, Finished	"	28.20
" " " " Nickel-plated	"	31.80
Add for Stuffing Box	"	4.80

SELF-CLOSING

BOSTON S. O. T.

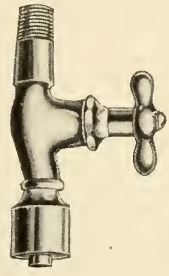


Plate E2754

BOSTON LEAD PIPE

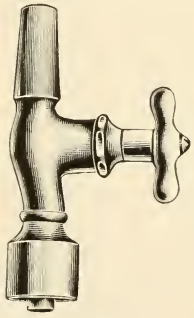


Plate E2755

DOHERTY S. O. T.

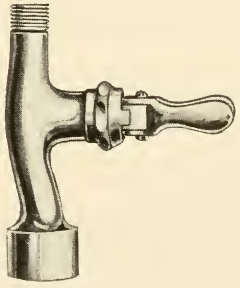


Plate E2756

Size	inches	½
Price, Boston S. O. T., Finished	per dozen	37.80
" " " Nickel-plated	"	43.80
" " Lead Pipe, Finished	"	39.00
" " " " Nickel-plated	"	45.00
" Doherty S. O. T., Finished	"	42.60
" " " Nickel-plated	"	48.60

URINAL FITTINGS

INLET CONNECTIONS

WITH SLIP JOINT

Plate E2761

IRON PIPE FOR BRASS SPUD

Plate E2762

FLANGE NUT AND BENT COUPLING

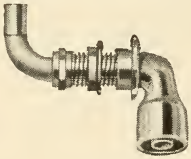


Plate E2763

F., N. AND B. C. AND SLIP JOINT

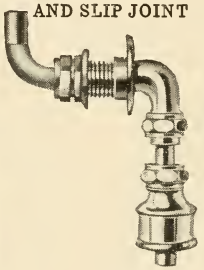


Plate E2764

F., N. AND B. C. AND SLIP JOINT FOR BRASS SPUD

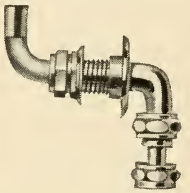


Plate E2765

Price, with Slip Joint, Finished or Nickel-plated	each	.90
" for Iron Pipe, for Brass Spud Urinal, Finished or Nickel-plated	"	1.10
" with Slip Joint, for " " " " " "	"	1.20
" Adj. Flange, Nut and Bent Coupling " " "	"	1.80
" " " " " " and Slip Joint, Fin. or N. P	"	3.00
" " " Bent Coupling and Slip Joint, for Brass Spud, Fin. or N. P.,	"	3.00

OUTLET CONNECTIONS

REGULAR

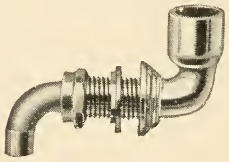


Plate E2766

WITH CLEANOUT

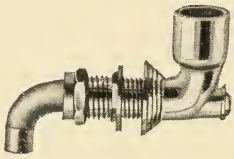


Plate E2767

Price, with Adj. Flange and Bent Coupling, Finished or Nickel-plated	each	2.50
" " " " Bent Coupling and Cleanout, Fin. or Nickel-plated	"	3.70
" Extra for Vent and Waste Connection	"	.60

Add .50 for each connection bushed for iron pipe.

TRAPS

WITH FLANGE AND BENT COUPLING

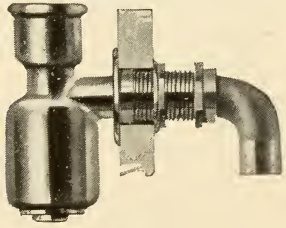


Plate E2768

ADJUSTABLE FLANGES

WITH WASTE AND VENT

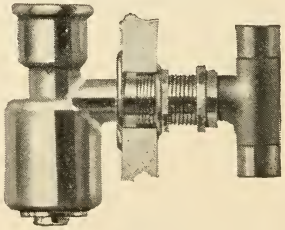


Plate E2769

Price, with Adj. Flange and Bent Coupling, Finished or Nickel-plated	each	4.00
" " " " " Shank for 1½-in. I. P., Finished or Nickel-plated,	"	3.60
" " " " " Waste and Vent, Finished or Nickel-plated	"	4.40
" " Slip Joint and Bent Coupling, Finished or Nickel-plated	"	5.40
" " " " Bent Coupling and Waste and Vent, Fin. or N. P	"	6.00

Add .50 for each connection bushed for iron pipe.

URINAL FITTINGS

FLUSH PIPE FITTINGS

TWO-WAY

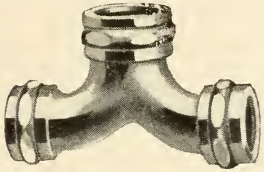


Plate E2771

THREE-WAY

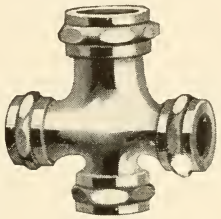


Plate E2772

Price, Two-way, N. P., ¾ or 13/16-in. O. D., all around	each	1.50
" " " " 1-in. O. D., all around	"	1.80
" " " " ¾-in. or 13/16-in. O. D., 1¼-in. O. D. Inlet	"	1.80
" " " " 1-in or 1¼-in. O. D. Inlet	"	2.20
" Three-way, " ¾ or 13/16-in. O. D., 1¼-in. O. D. Inlet	"	2.50
" " " " 1 in. O. D., 1¼-in. O. D. Inlet	"	2.90

ELBOW

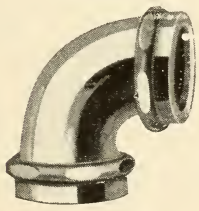


Plate E2773

TEE

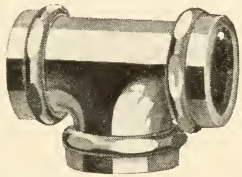


Plate E2774

Price, Elbows, Nickel-plated, ¾-in. O. D.	each	.50
" " " " 13/16 " "	"	.70
" " " " 1 " "	"	.90
" Tees, Nickel-plated, ¾-in. O. D., all around	"	1.00
" " " " 1 x¾-in. O. D., all around	"	1.20
" " " " 1¼x¾ " " " "	"	1.70

URINAL STALL STRAINERS

BEEHIVE LEAD PIPE CONNECTION

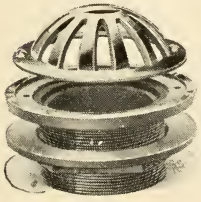


Plate E2775

FLAT LEAD PIPE CONNECTION

Plate E2776

FLAT IRON PIPE CONNECTION

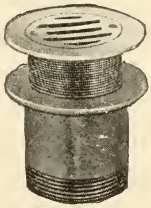


Plate E2777

VITREOUS CHINA

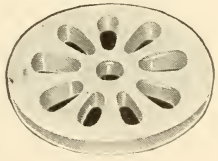


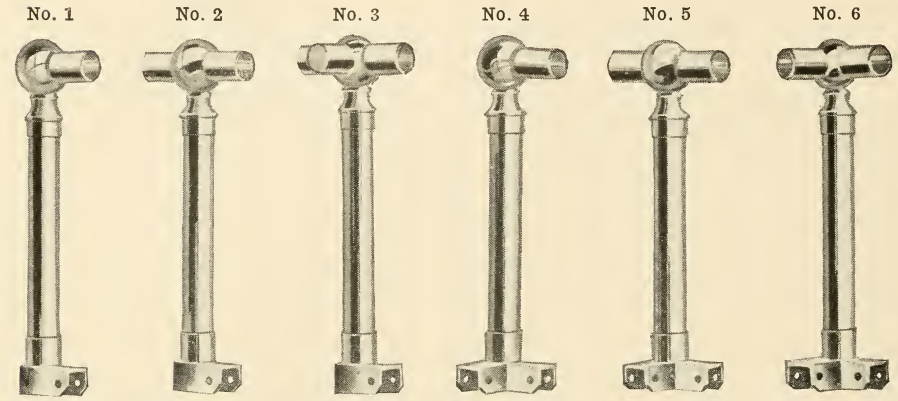
Plate E2778

Beehive—N. P. Brass, for 2-inch Lead Pipe Connection with 4½-inch Flange and Removable Beehive Strainer	each	4.00
Flat—N. P. Brass, for 2-inch Lead Pipe Connection with 4½-inch Flange and Removable Strainer	each	3.00
" —N. P. Brass, for 3-inch Iron Pipe Connection with 4½-inch Flange and Removable Strainer	each	4.00
Vitreous China Strainer to fit over Flat Brass Strainer	"	1.00

URINAL AND CLOSET STALL TRIMMINGS

TOP STANDARDS

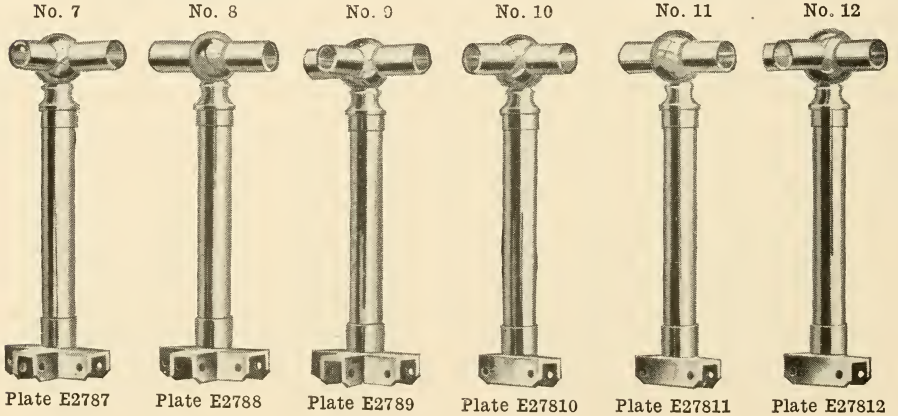
ENDS CORNERS



No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Plate E2781	Plate E2782	Plate E2783	Plate E2784	Plate E2785	Plate E2786

Number	1	2	3	4	5	6
Price, Finished or Nickel-plated..each	2.50	2.50	2.60	2.60	2.60	2.70

PARTITIONS CENTERS



No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
Plate E2787	Plate E2788	Plate E2789	Plate E27810	Plate E27811	Plate E27812

Number	7	8	9	10	11	12
Price, Finished or Nickel-plated..each	3.00	3.00	3.10	2.50	2.50	2.60

Sockets for above are made for ⅞, 1, 1⅛ and 1¼-inch marble. Always state thickness of marble, both stile and partition. Height of above, 12 inches from top of marble to center of top rail. Top rail branches take 1⅛-inch O. D. railing.

URINAL AND CLOSET STALL TRIMMINGS

TUBING LEGS

END No. 13 | CORNER No. 14 | CORNER No. 15 | CENTER No. 16 | PARTITION No. 17 | CROSS No. 18

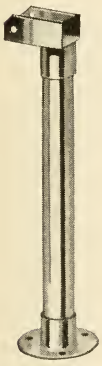


Plate E2791

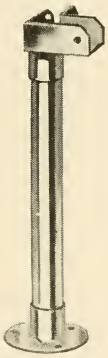


Plate E2792

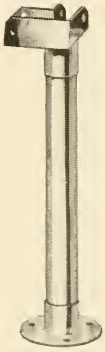


Plate E2793

Plate E2794

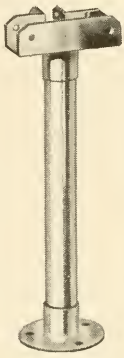


Plate E2795

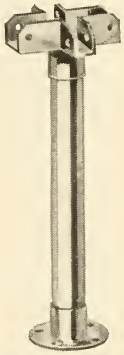


Plate E2796

Number	13	14	15	16	17	18
Price, Finished or Nickel-plated..each	**2.10**	**2.35**	**2.35**	**2.10**	**2.70**	**3.30**

The above urinal legs are made for 7/8, 1, 1 1/8 and 1 1/4-inch marble. Always state thickness of marble, both stile and partition. Height of legs, 12 inches from floor to bottom of marble.

BOLTS FOR MARBLE OR SLATE

No. 1 | No. 2 | No. 3 | WALL FLANGE | CAP

Plate E2797

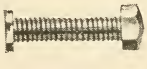


Plate E2798

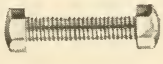


Plate E2799

Plate E27910

Plate E27911

BOLTS, FLANGES AND CAPS

	1	2	3
Number, Bolts			
Price, Finished or Nickel-plated Bolts.....per dozen	**.90**	**1.10**	**1.20**
" " " " " Flanges for 1 1/8-inch Railing.....each			**.50**
" " " " " Caps " 1 1/8 " " ..... "			**.40**

BRASS NUTS

ROUGH HEXAGON | HEXAGON CAP | OCTAGON CAP | WASHER | BRASS ROD CONTINUOUS THREAD

Plate E27912

Plate E27913

Plate E27914

Plate E27915

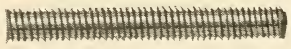


Plate E27916

BRASS NUTS, ETC.

Description	Rough Hexagon Nuts	Hexagon Cap Nuts	Octagon Cap Nuts	Washers
Price, Finished or Nickel-plated, per doz.	**.20**	**.40**	**1.50**	**.25**

BRASS RODS

Price, 1/4-inch Continuous Thread, Any Length, to order.....per foot **.12**

URINAL AND CLOSET STALL TRIMMINGS

STIRRUPS

TOP LEFT OR BOTTOM RIGHT

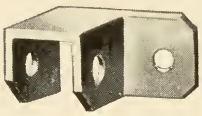


Plate E2801

CENTER

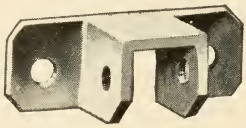


Plate E2802

TOP RIGHT OR BOTTOM LEFT

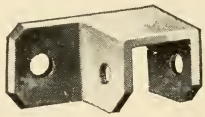


Plate E2803

Description	Top Left or Bottom Right		Center		Top Right or Bottom Left	
Size ..... inches	7/8 to 1 1/4	1 1/2	7/8 to 1 1/4	1 1/2	7/8 to 1 1/4	1 1/2
Price, Finished or Nickel-plated, with Bolts and Nuts ..... each	.60	.90	.60	.90	.60	.90

CLAMPS

ANGLE

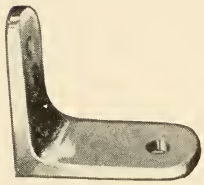


Plate E2804

STANDARD

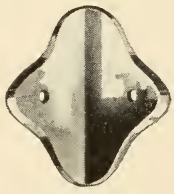


Plate E2805

ORNAMENTAL

Plate E2806

Description	Plain	Standard	Ornamental
Price, Finished or Nickel-plated, with Bolts and Nuts, each	.40	.45	.80

HINGES

WITH STEEL SPRING

DOUBLE BOX

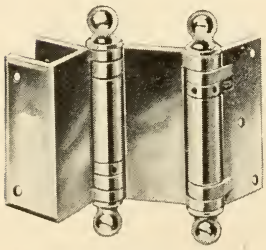


Plate E2807

SINGLE BOX

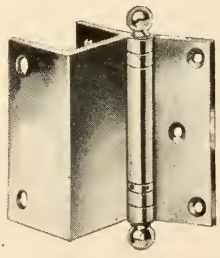


Plate E2808

SINGLE BOX WITHOUT SPRING

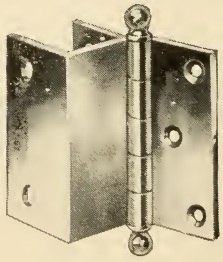


Plate E2809

Description	Double Box	Single Box	Single Box Without Spring
Price, Finished or Nickel-plated ..... per pair	12.00	6.50	4.30

URINAL AND CLOSET STALL TRIMMINGS

DOOR BOLTS

INDICATING RIM BOLT

OUTSIDE

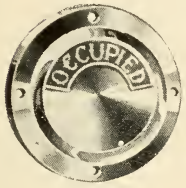


Plate E2811

INSIDE

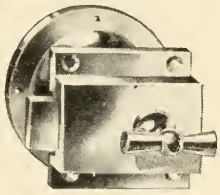


Plate E2812

MORTISE BOLT

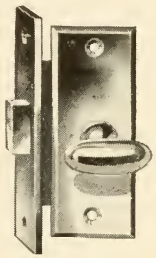


Plate E2813

Price, Finished or Nickel-plated, Indicating Rim Bolt.....each 3.75
" " " " " Mortise Bolt..... " 2.75

DOOR STRIKES

No. 1
DOUBLE ACTION
FOR RIM BOLTS

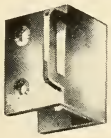


Plate E2814

No. 2
SINGLE ACTION
FOR RIM BOLTS
DOORS OPENING IN

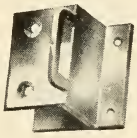


Plate E2815

No. 3
SINGLE ACTION
FOR RIM BOLTS
DOORS OPENING OUT

Plate E2816

No. 4
SINGLE ACTION
FOR MORTISE BOLTS
DOORS OPENING
IN OR OUT

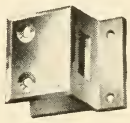


Plate E2817

Number	1	2	3	4
Price, Finished or Nickel-plated.....each	1.80	2.25	2.75	2.25

LATCHES AND PULLS

THROW LATCH—FOR WOOD

Plate E2818

DOOR PULL

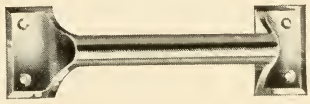


Plate E2819

Price, Finished or Nickel-plated Throw Latch.....each 1.75
" " " " " Door Pull..... " .35

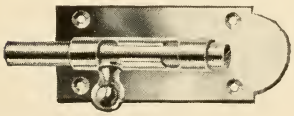


Plate E28110

DOOR BOLTS

Price, Finished or Nickel-plated..... .50

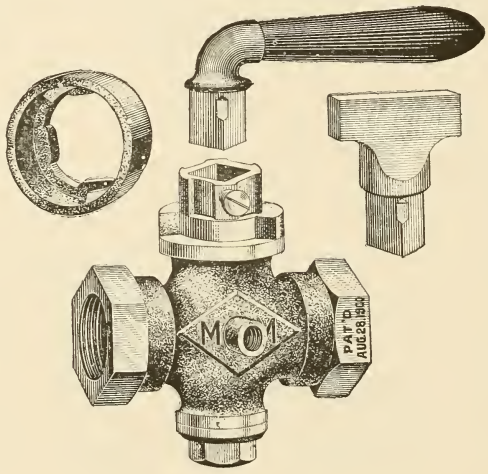
DIAMOND PATENT CAP STOP AND STOP AND WASTE COCKS

HIGH PRESSURE FLAT WAY RED METAL

MALLEABLE HANDLE

INTERCHANGEABLE—RIGHT OR LEFT-HAND

Patented



Diamond patent cap cocks are as good as can be made. We illustrate and list them on the following page.

METAL used in casting them is a high-grade mixture, high in percentage of copper and tin, known as **STEAM METAL**, which is the best possible. **ONLY NEW METAL IS USED.**

GRINDING is perfect. Special machines of our own design, in charge of skilled men, grind the plug to a perfect fit with the body.

TEST.—All Diamond cocks are tested with **200 POUNDS** water pressure.

DESIGN.—In making the patterns for Diamond cocks, great care was used to provide ample strength in every part, and still retain an attractive appearance.

THE PATENT CAP fits snugly around the top of the plug, preventing any sand or grit getting to the top of the plug where it fits the body of the cock. Two lugs inside the cap engage two lugs on the body of the cock, permitting only a quarter turn of the plug. All these lugs are strong and cannot be broken off, as often happens when a brass pin or screw is used to control the stopping of the plug.

INTERCHANGEABLE.—Diamond stop and waste cocks can be changed to right or left-hand, without shutting off the water, which is a great advantage when water pipes run close to a wall.

HANDLES, either lever or tee handle, are **MALLEABLE IRON,** and will not break; ½ and ⅝-inch are the same size, while ¾, 1 and 1¼-inch have a different size square where they enter the socket.

SOCKET IN PLUG is re-enforced at each angle to the socket, and is stronger than any other cock made. No danger of splitting the socket.

DIAMOND PATENT CAP STOP COCKS AND STOP AND WASTE COCKS are strictly first class in every respect, and are **FULLY GUARANTEED** to be tight and give good service.

See following page for illustrations and prices.

DIAMOND PATENT CAP STOP AND STOP AND WASTE COCKS

HIGH PRESSURE FLAT WAY RED METAL

MALLEABLE HANDLE

INTERCHANGEABLE—RIGHT OR LEFT-HAND

IRON PIPE

STOP

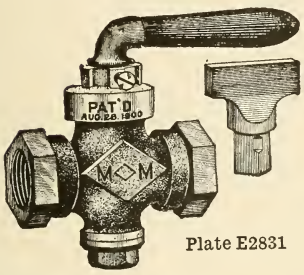


Plate E2831

STOP AND WASTE

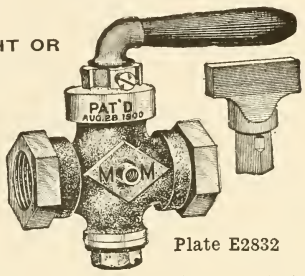


Plate E2832

Size ..... inches	½	⅝	¾	1	1¼
Price, Rough, Stops..... per dozen	21.00	29.40	36.00	52.80	89.40
" " Stop and Waste.. "	21.60	30.00	36.60	54.00	91.20

LEAD AND IRON

STOP

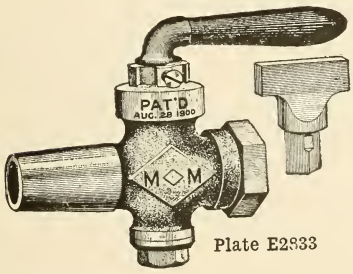


Plate E2833

STOP AND WASTE

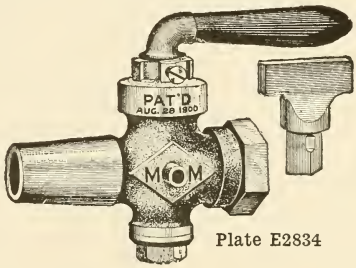


Plate E2834

Size ..... inches	½	⅝	¾	1	1¼
Price, Rough, Stops..... per dozen	23.40	33.00	40.80	60.00	100.20
" " Stop and Waste "	24.00	33.60	41.40	61.20	102.00

LEAD PIPE

STOP

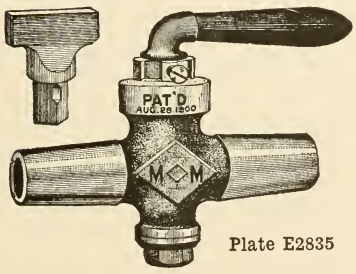


Plate E2835

STOP AND WASTE

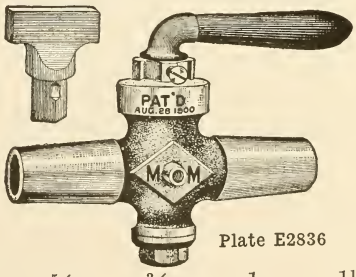


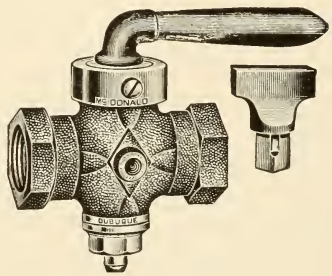
Plate E2836

Size ..... inches	½	⅝	¾	1	1¼
Price, Rough, Stops..... per dozen	23.40	33.00	40.80	60.00	100.20
" " Stop and Waste.. "	24.00	33.60	41.40	61.20	102.00

One handle only (tee or lever) furnished with each cock as ordered.

DUBUQUE CAP PATTERN STOP AND STOP AND WASTE COCKS

RED METAL **FLAT WAY** **EXTRA HEAVY**
MALLEABLE HANDLE



Dubuque Cap Pattern Cocks are well made in every respect and are intended for use where satisf actory service is desired.

A good grade of **RED METAL** is used. The greatest care in grinding and finishing insures a satisfactory product.

All Dubuque Cap Pattern Cocks are carefully **TESTED** with a water pressure of 150 pounds.

CAP fits top of plug perfectly, preventing sand or grit entering between plug and body of cock.

INTERCHANGEABLE.—These Dubuque Cap Pattern Stop and Waste Cocks can be made Right or Left-hand after being installed, which is very convenient when the water pipe runs close to a wall.

DESIGN.—In making the patterns, provision was made for the re-enforcement of these goods at every point of strain.

HANDLES are Malleable Iron and will not break. Either Lever Handles or Tee Handles will be furnished; ½ and ⅝-inch handles are the same size, while ¾ and 1-inch are a different size.

Dubuque Cap Pattern Cocks are good, and will give satisfactory service.

DUBUQUE CAP PATTERN STOP AND STOP AND WASTE COCKS

RED METAL — FLAT WAY — EXTRA HEAVY

STOP — MALLEABLE HANDLE — STOP AND WASTE

IRON PIPE

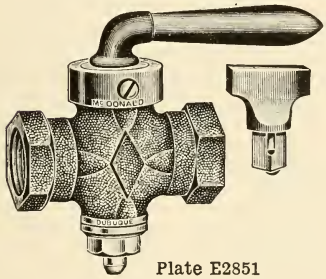


Plate E2851

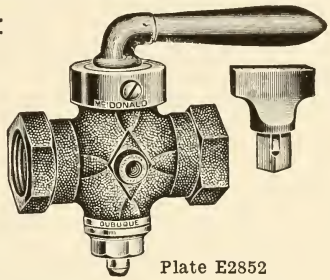


Plate E2852

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	21.00	29.40	36.00	52.80
" " Stop and Waste..... "	21.60	30.00	36.60	54.00

LEAD AND IRON

STOP — STOP AND WASTE

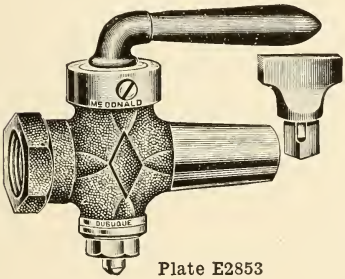


Plate E2853

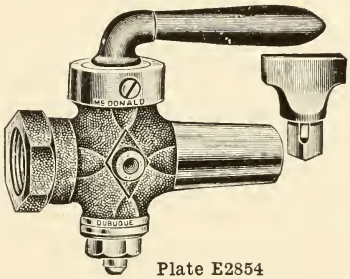


Plate E2854

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	23.40	33.00	40.80	60.00
" " Stop and Waste..... "	24.00	33.60	41.40	61.20

LEAD PIPE

STOP — STOP AND WASTE

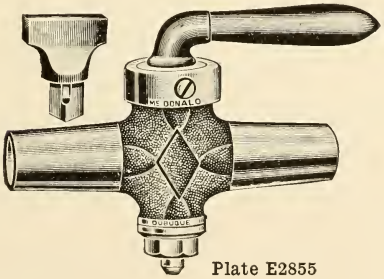


Plate E2855

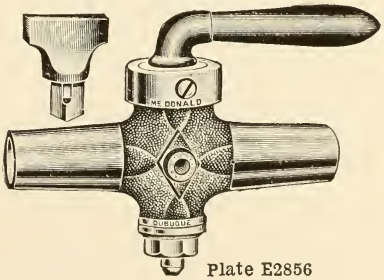


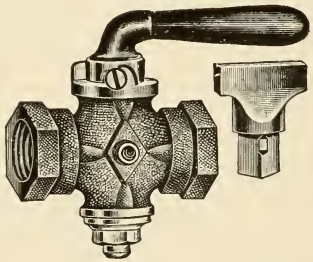
Plate E2856

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	23.40	33.00	40.80	60.00
" " Stop and Waste..... "	24.00	33.60	41.40	61.20

Handle may be inserted for either right or left-hand use. One handle furnished with each cock. Lever handle sent unless otherwise ordered.

SOCKET HEAD STOP AND STOP AND WASTE COCKS

EXTRA HEAVY RED METAL FLAT WAY
MALLEABLE HANDLE



McDonald Socket Head Cocks are well machined in all respects, particular attention being paid to the grinding and likewise to the finishing in all minor details, and guaranteed to give satisfactory service.

RED METAL of the best grade is used in the construction of these cocks and only virgin metal is used in the alloy; no scrap metals of any kind entering into their construction.

TESTED.—Every cock is tested at an hydraulic pressure of 150 pounds before leaving the factory to insure against leakage in service.

SOCKET HEAD in the plug permits the use of either lever handle or tee handle, avoiding the necessity of carrying both kinds in stock.

INTERCHANGING.—An extra hole being drilled and tapped in the plug of stop and waste cocks permits changing the screw to either hole, thus altering the position of the plug so as to make the cock either right-hand or left-hand, as may be desired.

RE-ENFORCED.—Strengthening or re-enforcing ribs are placed on the body at the points of strain to prevent damage to the cock when screwing to the line pipe.

HANDLES are malleable iron and will not break. Furnished with either tee or lever handles, as ordered: ½ and ⅝-inch handles are the same size; ¾ and 1-inch handles are each different in size.

McDonald Socket Head Cocks are guaranteed and recommended for moderate service.

SOCKET HEAD STOP AND STOP AND WASTE COCKS

EXTRA HEAVY
STOP

FLAT WAY
MALLEABLE HANDLE

RED METAL
STOP AND WASTE

IRON PIPE

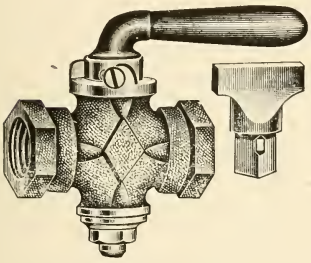


Plate E2871

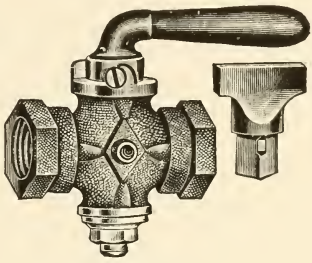


Plate E2872

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	21.00	29.40	36.00	52.80
" " Stop and Waste..... "	21.60	30.00	36.60	54.00

STOP — LEAD AND IRON — STOP AND WASTE

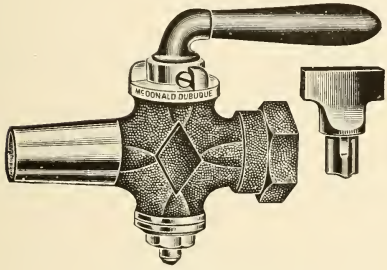


Plate E2873

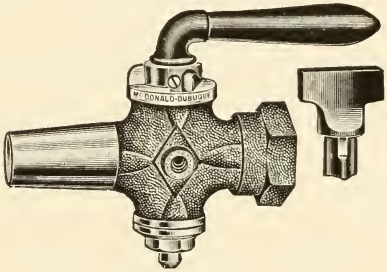


Plate E2874

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	23.40	33.00	40.80	60.00
" " Stop and Waste..... "	24.00	33.60	41.40	61.20

STOP — LEAD PIPE — STOP AND WASTE

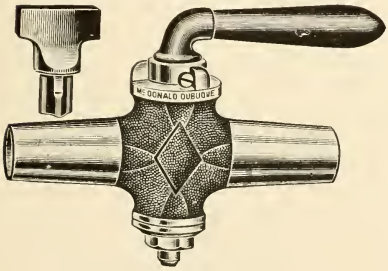


Plate E2875

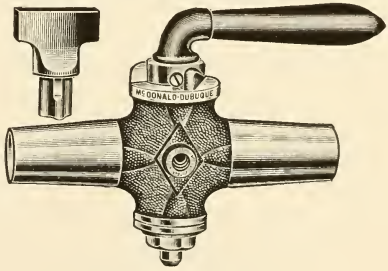


Plate E2876

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	23.40	33.00	40.80	60.00
" " Stop and Waste..... "	24.00	33.60	41.40	61.20

Key is drilled and tapped so that handle may be inserted for either right or left-hand use. Stops and stop pins are extra strong to withstand rough usage, body is re-enforced for high pressure work, thoroughly ground and tested at 150 pounds water pressure.

Always furnished with lever handle unless otherwise ordered. One handle furnished with each cock.

McDONALD STANDARD GROUND KEY COCKS

RED METAL

STOPS AND STOP AND WASTE COCKS

TEE AND LEVER HANDLE FLAT AND ROUND WAY

IRON PIPE LEAD AND IRON PIPE LEAD PIPE

HYDRANT COCKS CORPORATION COCKS

LEAD FLANGE STOPS, STOP AND WASTES AND CORPORATION COCKS

On the following pages we illustrate and list our line of standard ground key work.

All of our standard ground key cocks are made of new metal, copper, tin, zinc and lead in such proportions as to make the alloy commonly termed red metal. No scrap metals are used. Red metal is high in percentage of copper and low in zinc, giving a mixture that is close in texture, durable in service, sufficiently hard to grind to a perfect fit and wear well in service, and much superior to yellow metal, which is more porous, less durable and costs considerably less money.

Our factory is modern and up to date as to equipment, and our mechanics thoroughly expert.

Proper equipment and skilled mechanics enable us to turn out ground key work carefully prepared and perfectly ground to prevent leakage. **GRINDING** is the most important operation in the manufacture of ground key work, and this operation is performed on special machines of our own design.

EVERY PIECE IS THOROUGHLY TESTED UNDER HYDRAULIC PRESSURE BEFORE LEAVING THE FACTORY.

ALL STOP AND WASTE COCKS HAVE BIG PYN CHECK PINS 5/16-inch in diameter, which is about twice the size ordinarily used, so there is no possibility of breaking off our check pin.

Our patterns are full size, regular design, not the short, stubby pattern.

Our castings are clean and smooth, the material being wrapped up in packages, sealed and labeled so as to keep them clean and attractive and easy to handle or stock on the shelves.

A glance through the following pages will show that our line of standard ground key cocks is most complete.

OUR PRICES are always attractive if any consideration is given to quality. The extensive trade which we enjoy on our standard ground key work, from coast to coast, continues steadily with the same customers year after year, making us feel as we have often been told, "that we make the best line of standard ground key cocks on the market."

LEAD FLANGE STOPS, STOP AND WASTES AND CORPORATION COCKS are shown in their various groups on the following pages. Lead flange work is desirable because connections can easily be made with lead pipe by means of a hammer and swedging tool (see Plate E3204), and the connections thus made are really better and more serviceable than wiped joints.

RED METAL ROUGH GROUND KEY WORK

TEE HANDLE

STOP

Plate E2891

IRON PIPE

FLAT WAY

STOP AND WASTE

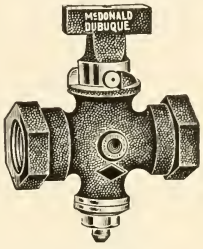


Plate E2892

STOPS

Size.....inches	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough...per dozen	19.80	20.40	21.00	29.40	36.00	52.80	89.40	149.40	258.00
" Finished.. "	24.60	25.20	25.80	35.40	45.00	64.80	107.40	179.40	300.00
" Nickel-plated "	29.40	30.00	30.60	41.40	54.00	76.80	125.40	209.40	342.00

STOP AND WASTES

Price, Rough...per dozen	20.40	21.00	21.60	30.00	36.60	54.00	91.20	152.40	264.00
" Finished.. "	25.20	25.80	26.40	36.00	45.60	66.00	109.20	182.40	306.00
" Nickel-plated "	30.00	30.60	31.20	42.00	54.60	78.00	127.20	212.40	348.00

STOP

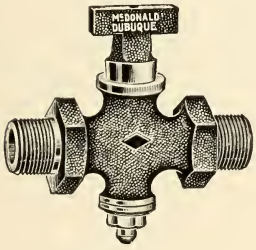


Plate E2893

MALE IRON PIPE

STOP AND WASTE

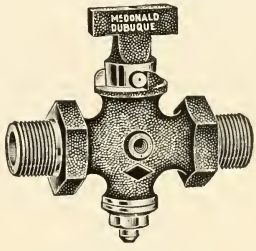


Plate E2894

Size.....inches	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough Stops.....per dozen	27.00	27.60	28.20	39.00	45.60	64.80	107.40	179.40	306.00
" " Stop and Waste "	27.60	28.20	28.80	39.60	46.20	66.00	109.20	182.40	312.00

STOP

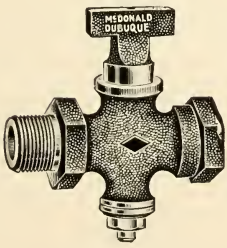


Plate E2895

MALE AND FEMALE

STOP AND WASTE

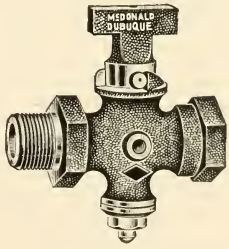


Plate E2896

Size.....inches	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough Stops.....per dozen	23.40	24.00	24.60	34.20	40.80	58.80	98.40	164.40	282.00
" " Stop and Waste "	24.00	24.60	25.20	34.80	41.40	60.00	100.20	167.40	288.00

RED METAL ROUGH GROUND KEY WORK

TEE HANDLE FLAT WAY

LEAD PIPE

STOP

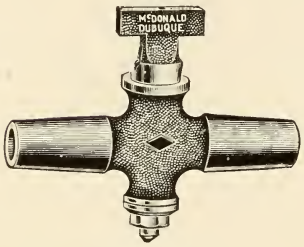


Plate E2901

STOP AND WASTE

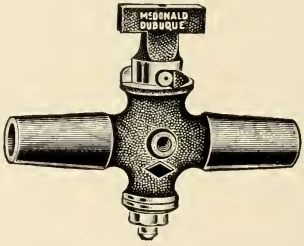


Plate E2902

Size.....inches	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough, Stops.....per doz.	22.80	23.40	33.00	40.80	60.00	100.20	167.40	288.00
" " Stop and Waste.. "	23.40	24.00	33.60	41.40	61.20	102.00	170.40	294.00

MALE AND LEAD

STOP

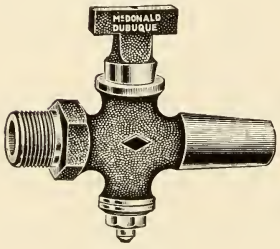


Plate E2903

STOP AND WASTE

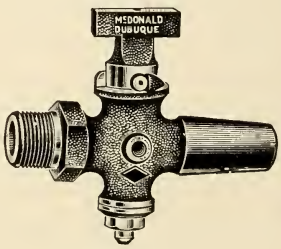


Plate E2904

Size.....inches	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough Stops.....per doz.	26.40	27.00	37.80	45.60	66.00	109.20	182.40	312.00
" " Stop and Waste.. "	27.00	27.60	38.40	46.20	67.20	111.00	185.40	318.00

FEMALE AND LEAD

STOP

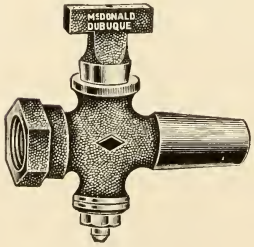


Plate E2905

STOP AND WASTE

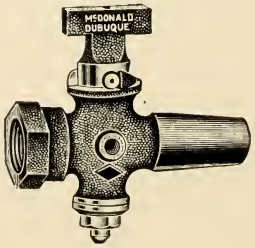


Plate E2906

Size.....inches	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough Stops.....per doz.	22.80	23.40	33.00	40.80	60.00	100.20	167.40	288.00
" " Stop and Waste.. "	23.40	24.00	33.60	41.40	61.20	102.00	170.40	294.00

RED METAL ROUGH GROUND KEY WORK

LEVER HANDLE FLAT WAY

STOP

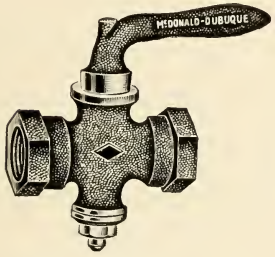


Plate E2911

IRON PIPE

STOP AND WASTE

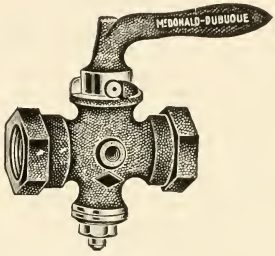


Plate E2912

STOPS

Size.....inches	¼	⅜	½	⅝	¾	1	1¼	1½	2
Price, Rough...per doz.	19.80	20.40	21.00	29.40	36.00	52.80	89.40	149.40	258.00
" Finished.. "	24.60	25.20	25.80	35.40	45.00	64.80	107.40	179.40	300.00
" N. P.... "	29.40	30.00	30.60	41.40	54.00	76.80	125.40	209.40	342.00

STOP AND WASTES

Size.....inches	¼	⅜	½	⅝	¾	1	1¼	1½	2
Price, Rough...per doz.	20.40	21.00	21.60	30.00	36.60	54.00	91.20	152.40	264.00
" Finished.. "	25.20	25.80	26.40	36.00	45.60	66.00	109.20	182.40	306.00
" N. P..... "	30.00	30.60	31.20	42.00	54.60	78.00	127.20	212.40	348.00

STOP

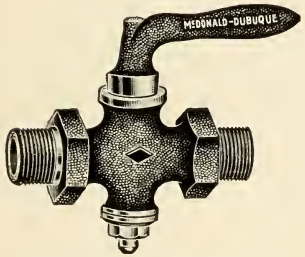


Plate E2913

MALE IRON PIPE

STOP AND WASTE

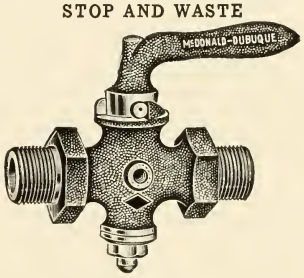


Plate E2914

Size.....inches	¼	⅜	½	⅝	¾	1	1¼	1½	2
Price, Rough Stops.....per dozen	27.00	27.60	28.20	39.00	45.60	64.80	107.40	179.40	306.00
" " Stop and Waste "	27.60	28.20	28.80	39.60	46.20	66.00	109.20	182.40	312.00

STOP

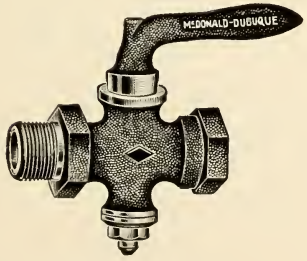


Plate E2915

MALE AND FEMALE

STOP AND WASTE

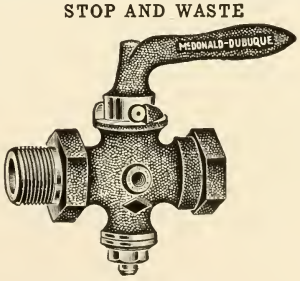


Plate E2916

Size.....inches	¼	⅜	½	⅝	¾	1	1¼	1½	2
Price, Rough Stops....per dozen	23.40	24.00	24.60	34.20	40.80	58.80	98.40	164.40	282.00
" " Stop and Waste "	24.00	24.60	25.20	34.80	41.40	60.00	100.20	167.40	288.00

RED METAL ROUGH GROUND KEY WORK

LEVER HANDLE FLAT WAY

LEAD PIPE

STOP

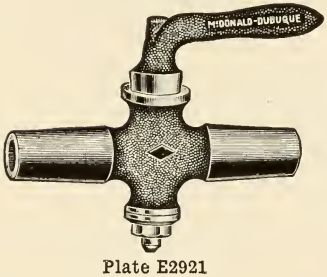


Plate E2921

STOP AND WASTE

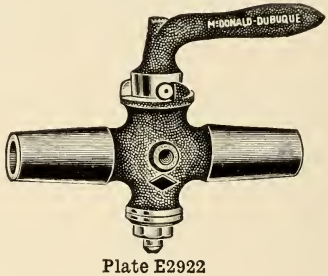


Plate E2922

Size.....inches	⅜	½	⅝	¾	1	1¼	1½	2
Price, Rough Stop.....per dozen	22.80	23.40	33.00	40.80	60.00	100.20	167.40	288.00
" " " and Waste.. "	23.40	24.00	33.60	41.40	61.20	102.00	170.40	294.00

MALE AND LEAD

STOP

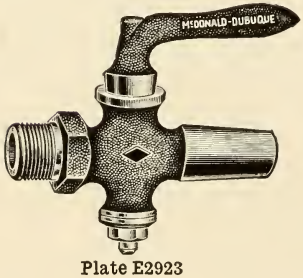


Plate E2923

STOP AND WASTE

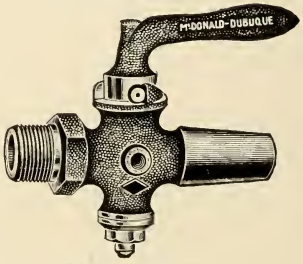


Plate E2924

Size.....inches	⅜	½	⅝	¾	1	1¼	1½	2
Price, Rough Stop.....per dozen	26.40	27.00	37.80	45.60	66.00	109.20	182.40	312.00
" " " and Waste.. "	27.00	27.60	38.40	46.20	67.20	111.00	185.40	318.00

FEMALE AND LEAD

STOP

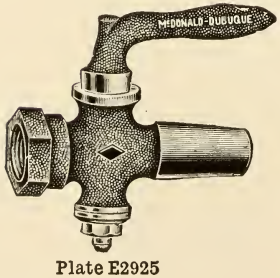


Plate E2925

STOP AND WASTE

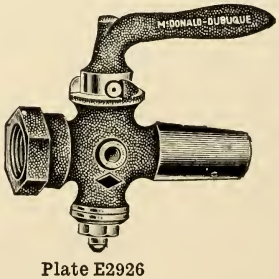


Plate E2926

Size.....inches	⅜	½	⅝	¾	1	1¼	1½	2
Price, Rough Stop.....per dozen	22.80	23.40	33.00	40.80	60.00	100.20	167.40	288.00
" " " and Waste.. "	23.40	24.00	33.60	41.40	61.20	102.00	170.40	294.00

RED METAL ROUGH GROUND KEY WORK

TEE HANDLE ROUND WAY

IRON PIPE

STOP

Plate E2931

STOP AND WASTE

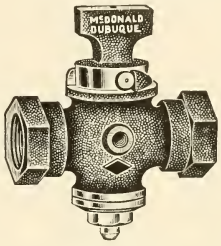


Plate E2932

Size..... inches	½	⅝	¾	1	1¼	1½	2
Price, Rough Stops...per dozen	26.40	36.00	46.20	73.80	120.60	197.40	342.00
" " Stop and Waste "	27.00	36.60	46.80	75.00	122.40	200.40	348.00

MALE IRON PIPE

STOP

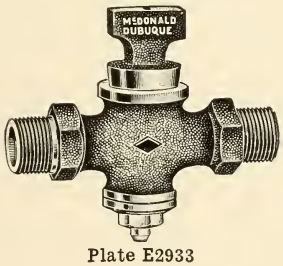


Plate E2933

STOP AND WASTE

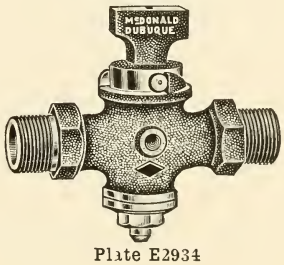


Plate E2934

Size..... inches	½	⅝	¾	1	1¼	1½	2
Price, Rough Stops....per doz.	33.60	45.60	55.80	85.80	138.60	227.40	390.00
" " Stop and Waste "	34.20	46.20	56.40	87.00	140.40	230.40	396.00

MALE AND FEMALE

STOP

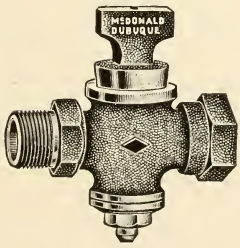


Plate E2935

STOP AND WASTE

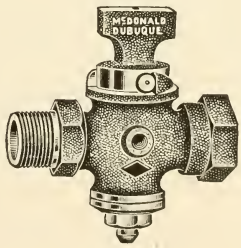


Plate E2936

Size..... inches	½	⅝	¾	1	1¼	1½	2
" Rough Stops....per doz.	30.00	40.80	51.00	79.80	129.60	212.40	366.00
" " Stop and Waste "	30.60	41.40	51.60	81.00	131.40	215.40	372.00

RED METAL ROUGH GROUND KEY WORK

TEE HANDLE ROUND WAY

LEAD PIPE

STOP

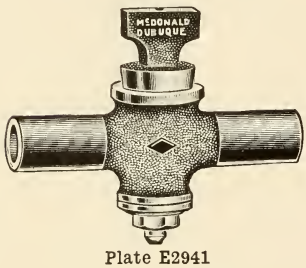


Plate E2941

STOP AND WASTE

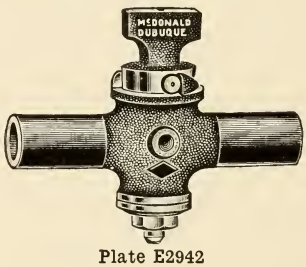


Plate E2942

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough Stops.....per doz.	28.80	39.60	51.00	81.00	131.40	215.40	372.00
" " Stop and Waste.. "	29.40	40.20	51.60	82.20	133.20	218.40	378.00

MALE AND LEAD

STOP

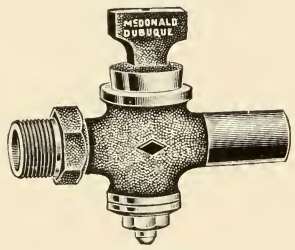


Plate E2943

STOP AND WASTE

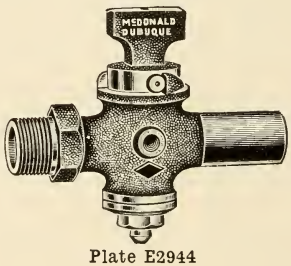


Plate E2944

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough Stops.....per doz.	32.40	44.40	55.80	87.00	140.40	230.40	396.00
" " Stop and Waste.. "	33.00	45.00	56.40	88.20	142.20	233.40	402.00

FEMALE AND LEAD

STOP

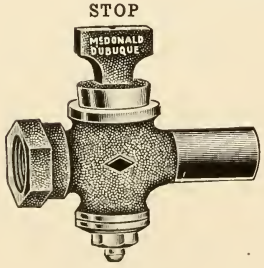


Plate E2945

STOP AND WASTE

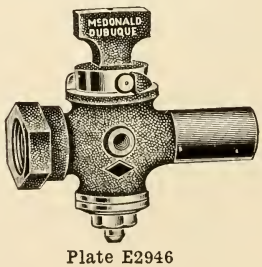


Plate E2946

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough Stops.....per doz.	28.80	39.60	51.00	81.00	131.40	215.40	372.00
" " Stop and Waste.. "	29.40	40.20	51.60	82.20	133.20	218.40	378.00

RED METAL ROUGH GROUND KEY CURB COCKS

LEAD FLANGE UNION COUPLING

SOLID HANDLE ROUND WAY

LEAD FLANGE UNION COUPLING AND FEMALE THREAD

STOP

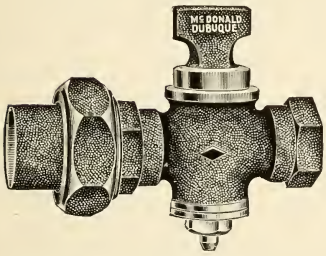


Plate E2951

STOP AND WASTE

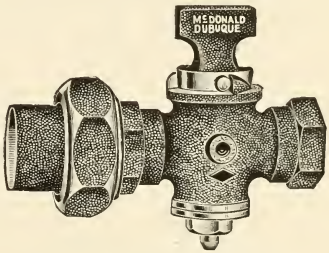


Plate E2952

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	36.00	49.20	62.40	97.80
" " Stop and Waste..... "	36.60	49.80	63.00	99.00

LEAD FLANGE UNION COUPLINGS

STOP

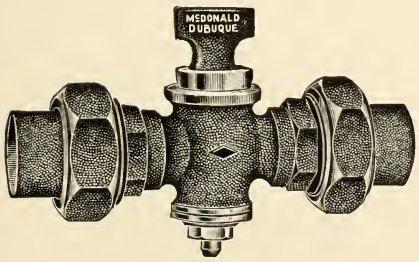


Plate E2953

STOP AND WASTE

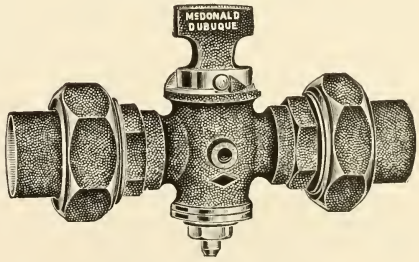


Plate E2954

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	45.60	62.40	78.60	121.80
" " Stop and Waste..... "	46.20	63.00	79.20	123.00

Union couplings for extra strong lead pipe.

RED METAL ROUGH GROUND KEY WORK

LEVER HANDLE ROUND WAY

STOP

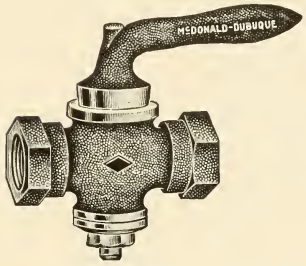


Plate E2961

IRON PIPE

STOP AND WASTE

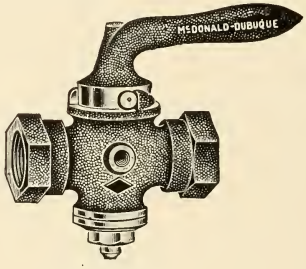


Plate E2962

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough, Stops.....per dozen	26.40	36.00	46.20	73.80	120.60	197.40	342.00
" " Stop and Waste "	27.00	36.60	46.80	75.00	122.40	200.40	348.00

STOP

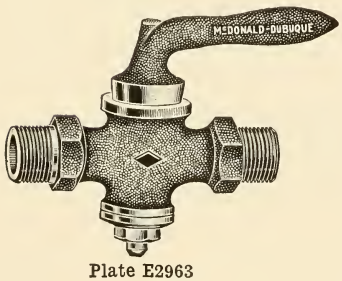


Plate E2963

MALE IRON PIPE

STOP AND WASTE

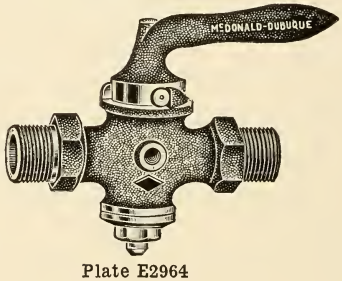


Plate E2964

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough, Stops.....per dozen	33.60	45.60	55.80	85.80	138.60	227.40	390.00
" " Stop and Waste "	34.20	46.20	56.40	87.00	140.40	230.40	396.00

STOP

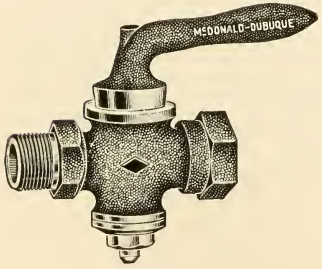


Plate E2965

MALE AND FEMALE

STOP AND WASTE

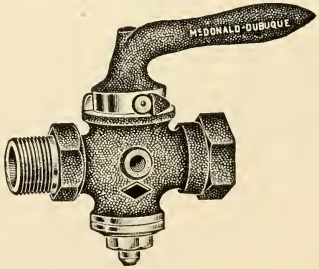


Plate E2966

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough, Stops.....per dozen	30.00	40.80	51.00	79.80	129.60	212.40	366.00
" " Stop and Waste "	30.60	41.40	51.60	81.00	131.40	215.40	372.00

RED METAL ROUGH GROUND KEY WORK

LEVER HANDLE ROUND WAY

LEAD PIPE

STOP

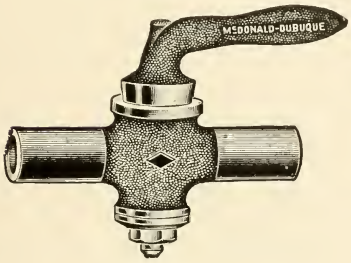


Plate E2971

STOP AND WASTE

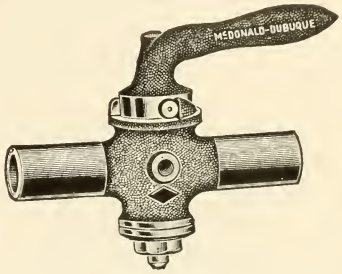


Plate E2972

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough, Stops.....per dozen	28.80	39.60	51.00	81.00	131.40	215.40	372.00
" " Stop and Waste "	29.40	40.20	51.60	82.20	133.20	218.40	378.00

MALE AND LEAD

STOP

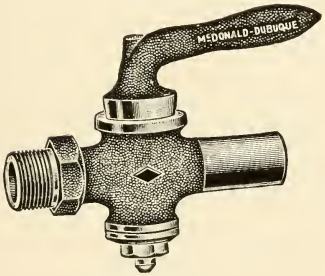


Plate E2973

STOP AND WASTE

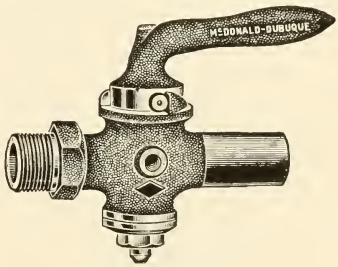


Plate E2974

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough, Stops.....per dozen	32.40	44.40	55.80	87.00	140.40	230.40	396.00
" " Stop and Waste "	33.00	45.00	56.40	88.20	142.20	233.40	402.00

FEMALE AND LEAD

STOP

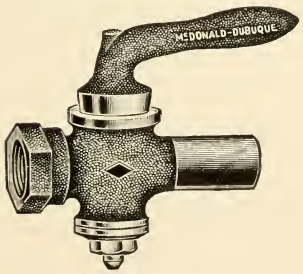


Plate E2975

STOP AND WASTE

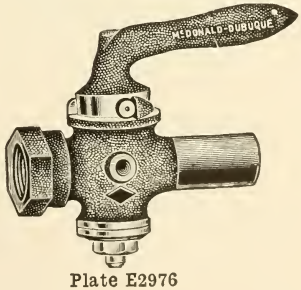


Plate E2976

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough, Stops.....per dozen	28.80	39.60	51.00	81.00	131.40	215.40	372.00
" " Stop and Waste "	29.40	40.20	51.60	82.20	133.20	218.40	378.00

RED METAL ROUGH GROUND KEY WORK

MINNEAPOLIS

TEE HANDLE FLAT WAY

STOP
IRON PIPE

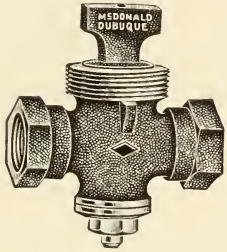


Plate E2981

STOP
MALE AND FEMALE

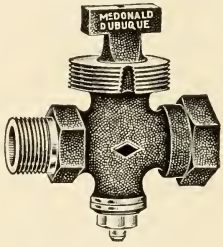


Plate E2982

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1¼	1½	1½	2	2	2½
Price, Rough Stops.....per dozen	25.80	34.80	42.00	60.60	101.40	167.40	288.00
" " Stop and Waste (Not Illustrated).....per dozen	26.40	35.40	42.60	61.80	103.20	170.40	294.00
Price, Rough Stops.....per dozen	29.40	39.60	46.80	66.60	110.40	182.40	312.00
" " Stop and Waste (Not Illustrated)..... "	30.00	40.20	47.40	67.80	112.20	185.40	318.00

STOP
LEAD PIPE

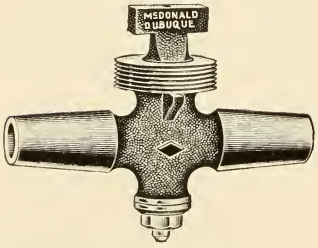


Plate E2983

STOP
FEMALE AND LEAD

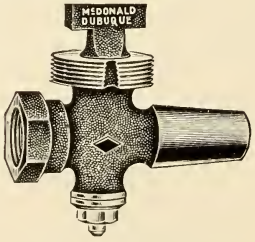


Plate E2984

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1¼	1½	1½	2	2	2½
Price, Rough Stops.....per dozen	28.20	38.40	46.80	67.80	112.20	185.40	318.00
" " Stop and Waste (Not Illustrated)..... "	28.80	39.00	47.40	69.00	114.00	188.40	324.00
Price, Rough Stops.....per dozen	28.20	38.40	46.80	67.80	112.20	185.40	318.00
" " Stop and Waste (Not Illustrated)..... "	28.80	39.00	47.40	69.00	114.00	188.40	324.00

RED METAL ROUGH GROUND KEY WORK

MINNEAPOLIS

TEE HANDLE ROUND WAY

IRON PIPE

STOP

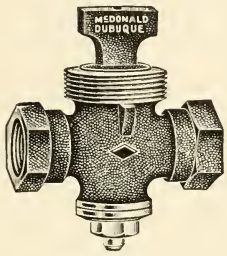


Plate E2991

STOP AND WASTE

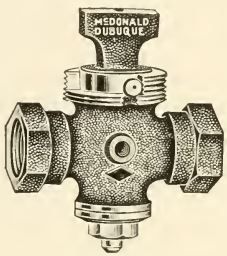


Plate E2992

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough, Stops.....per dozen	31.20	41.40	52.20	81.60	132.60	215.40	372.00
" " " and Waste "	31.80	42.00	52.80	82.80	134.40	218.40	378.00

MALE IRON PIPE

STOP

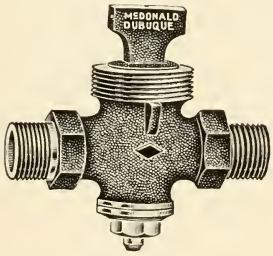


Plate E2993

STOP AND WASTE

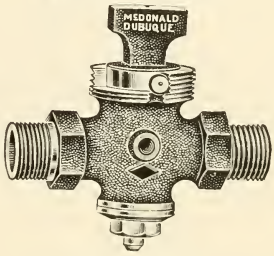


Plate E2994

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top ..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough, Stops.....per dozen	38.40	51.00	61.80	93.60	150.60	245.40	420.00
" " Stop and Waste "	39.00	51.60	62.40	94.80	152.40	248.40	426.00

MALE AND FEMALE

STOP

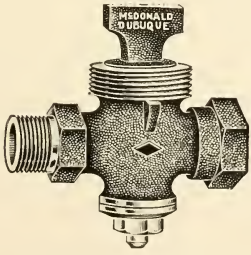


Plate E2995

STOP AND WASTE

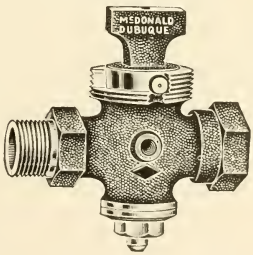


Plate E2996

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top ..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough, Stops.....per dozen	34.80	46.20	57.00	87.60	141.60	230.40	396.00
" " Stop and Waste "	35.40	46.80	57.60	88.80	143.40	233.40	402.00

RED METAL ROUGH GROUND KEY WORK

MINNEAPOLIS

TEE HANDLE ROUND WAY

LEAD PIPE

STOP

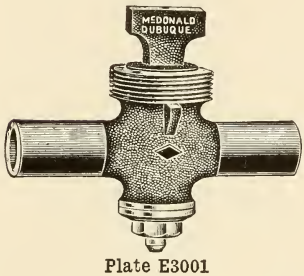


Plate E3001

STOP AND WASTE

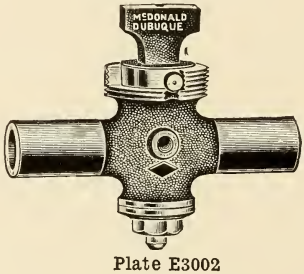


Plate E3002

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough, Stops.....per doz.	33.60	45.00	57.00	88.80	143.40	233.40	402.00
" " Stop and Waste "	34.20	45.60	57.60	90.00	145.20	236.40	408.00

MALE AND LEAD

STOP

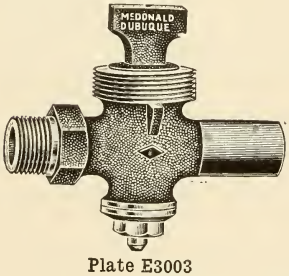


Plate E3003

STOP AND WASTE

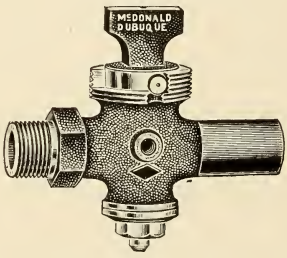


Plate E3004

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough, Stops.....per dozen	37.20	49.80	61.80	94.80	152.40	248.40	426.00
" " Stop and Waste "	37.80	50.40	62.40	96.00	154.20	251.40	432.00

FEMALE AND LEAD

STOP

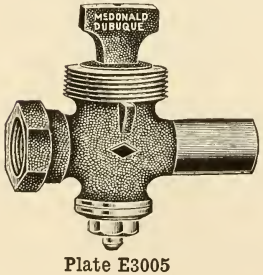


Plate E3005

STOP AND WASTE

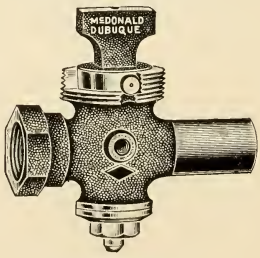


Plate E3006

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough, Stops.....per dozen	33.60	45.00	57.00	88.80	143.40	233.40	402.00
" " Stop and Waste "	34.20	45.60	57.60	90.00	145.20	236.40	408.00

RED METAL ROUGH GROUND KEY WORK

MINNEAPOLIS

IRON AND LEAD UNION

TEE HANDLE STOP

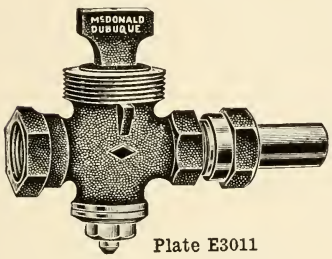


Plate E3011

ROUND WAY STOP AND WASTE

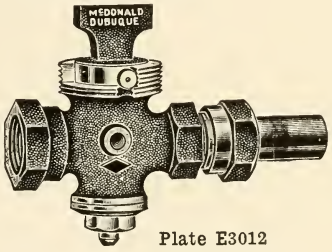


Plate E3012

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough Stops.....per dozen	40.80	54.00	64.80	97.80	154.80	245.40	417.00
" " Stop and Waste "	41.40	54.60	65.40	99.00	156.60	248.40	423.00

MALE AND LEAD UNION

STOP

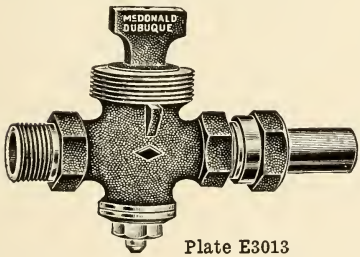


Plate E3013

STOP AND WASTE

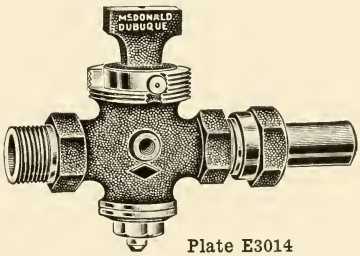


Plate E3014

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough Stops.....per dozen	44.40	58.80	69.60	103.80	163.80	260.40	441.00
" " Stop and Waste "	45.00	59.40	70.20	105.00	165.60	263.40	447.00

LEAD UNION COUPLINGS

STOP

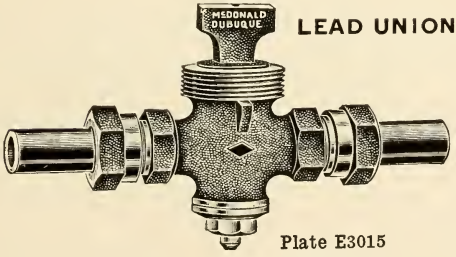


Plate E3015

STOP AND WASTE

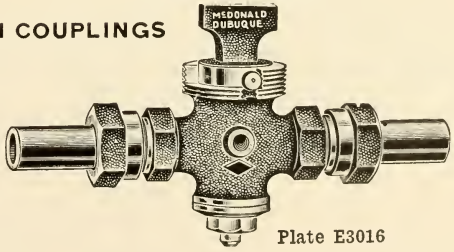


Plate E3016

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top..... "	1¼	1½	1½	2	2½	3	3½
Price, Rough Stops.....per dozen	50.40	66.60	77.40	114.00	177.00	275.40	462.00
" " Stop and Waste "	51.00	67.20	78.00	115.20	178.80	278.40	468.00

End of cock for union coupling is standard iron pipe thread, same size as body, ¾-inch union is used on ⅝-inch cock.

RED METAL ROUGH GROUND KEY CURB COCKS

MINNEAPOLIS

LEAD FLANGE UNION COUPLINGS

SOLID HANDLE ROUND WAY

LEAD FLANGE UNION COUPLING AND FEMALE THREAD

STOP

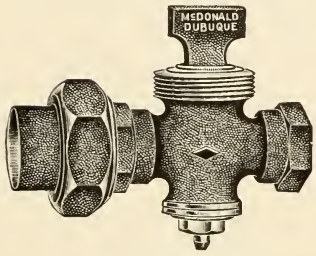


Plate E3021

STOP AND WASTE

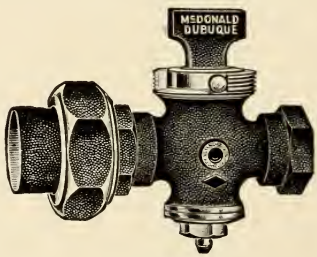


Plate E3022

Size.....inches	½	⅝	¾	1
" Minneapolis Top..... "	1¼	1½	1½	2
Price, Rough Stops.....per dozen	40.80	54.60	68.40	105.60
" " Stop and Waste..... "	41.40	55.20	69.00	106.80

LEAD FLANGE UNION COUPLINGS

STOP

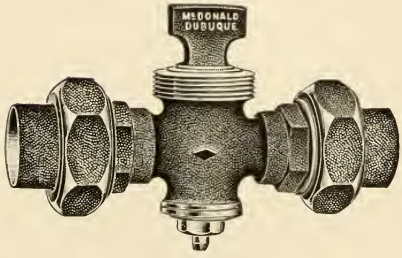


Plate E3023

STOP AND WASTE

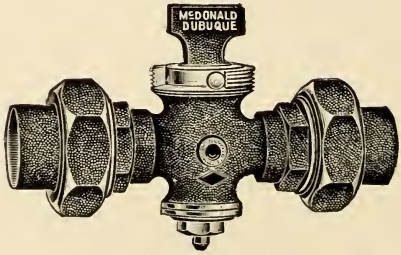


Plate E3024

Size.....inches	½	⅝	¾	1
" Minneapolis Top..... "	1¼	1½	1½	2
Price, Rough Stops.....per dozen	50.40	67.80	84.60	129.60
" " Stop and Waste..... "	51.00	68.40	85.20	130.80

Union couplings for extra strong lead pipe.

RED METAL ROUGH GROUND KEY WORK

RED METAL H PATTERN ROUND WAY

TEE HANDLE, IRON PIPE

STOP

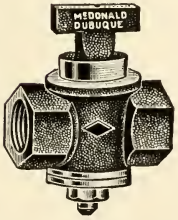


Plate E3031

STOP AND WASTE

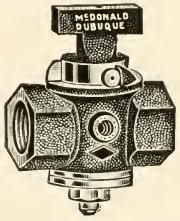


Plate E3032

Size.....inches	½	⅝	¾	1
Price, Rough Stop .....per dozen	23.40	32.40	41.40	67.20
" " " and Waste..... "	24.00	33.00	42.00	68.40

LEVER HANDLE, IRON PIPE

STOP

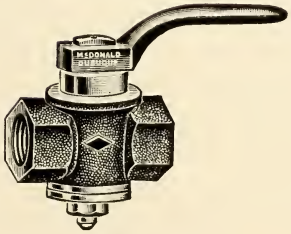


Plate E3033

STOP AND WASTE

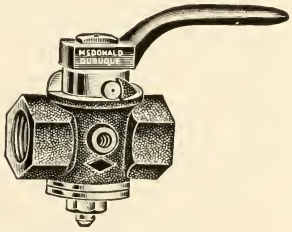


Plate E3034

Size.....inches	½	⅝	¾	1
Price, Rough Stop.....per dozen	23.40	32.40	41.40	67.20
" " " and Waste..... "	24.00	33.00	42.00	68.40

RED METAL GROUND KEY HYDRANT COCKS

SOLID TEE HANDLE

IRON PIPE

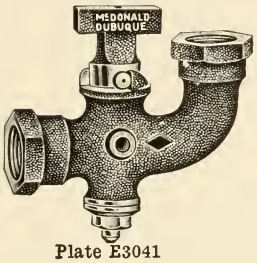


Plate E3041

LEAD AND IRON

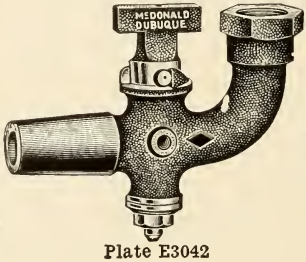


Plate E3042

LEAD PIPE

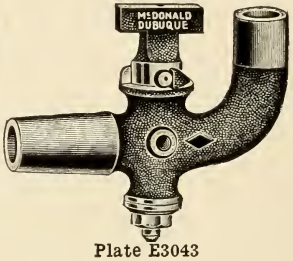


Plate E3043

Size.....inches	½	⅝	¾	1	1¼
Price, Rough, for Iron Pipe.....per dozen	25.80	36.60	45.00	64.80	103.80
" " " Lead and Iron Pipe... "	28.20	40.20	49.80	72.00	.....
" " " " Pipe..... "	28.20	40.20	49.80	72.00	.....

IRON PIPE

SOCKET HEAD MALLEABLE TEE

PLAIN SOCKET HEAD

Plate E3044

DIAMOND PATENT CAP

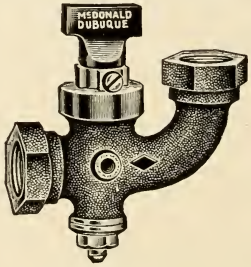


Plate E3045

PLAIN SOCKET HEAD

Size.....inches	½	⅝	¾	1
Price, Rough, for Iron Pipe.....per dozen	25.80	36.60	45.00	64.80
" " " Lead and Iron (not illustrated). "	28.20	40.20	49.80	72.00
" " " " Pipe (not illustrated)..... "	28.20	40.20	49.80	72.00

DIAMOND PATENT CAP

Size.....inches	½	⅝	¾	1	1¼
Price, Rough, for Iron Pipe.....per dozen	25.80	36.60	45.00	64.80	103.80
" " " Lead and Iron (not illustrated) "	28.20	40.20	49.80	72.00	.....
" " " " Pipe (not illustrated) "	28.20	40.20	49.80	72.00	.....

DIAMOND, PATENT CAP INVERTED KEY CURB COCKS

Diamond Patent Cap Inverted Key Curb Cocks are as good as can be made. They are shown and illustrated on the following pages.

METAL used in casting them is a high-grade mixture, high in the percentage of copper and tin, known as **STEAM METAL**, which is the best possible. **ONLY NEW METAL IS USED.**

GRINDING is perfect. Special machines of our own design, in charge of skilled men, grind the plug to a perfect fit with the body.

TEST. — All our inverted key curb cocks are tested with 200 pounds water pressure.

DESIGN. — Our patterns provide ample strength in every part, and retain an attractive appearance.

CONSTRUCTION.—Inverted key curb cocks have the small end of the plug at the top, and cap is screwed on the lower side of the body to hold the plug in place. Thus there is no tendency for the rod or key to make the cock wedge or stick, but rather the weight of the rod tends to loosen the key, causing it to turn more easily. A **BY-PASS,** on the pressure end of the cock, lets the water pressure get below the plug, and forces it up in position so that it cannot leak.

PATENT CAP. — The patent cap fits snugly around the top of the plug, preventing any sand or grit getting to the top of the plug where it fits the body of the cock. Two lugs inside the cap engage two lugs cast on the body of the cock, permitting only a quarter turn of the plug. All these lugs are strong and cannot be broken off.

These inverted key curb cocks are made round way only, stops and stop and wastes with regular or Minneapolis top.

LEAD FLANGE INVERTED KEY CURB COCKS are shown in several styles. Lead flange work is desirable because connections can easily be made with lead pipe by means of a hammer and swedging tool, shown as Plate E3204, and they really are better and more serviceable than wiped joints. The lead pipe is turned back over the shoulder of the tail piece, the flange being made with the swedging tool. When screwing the lead flange connection to a curb cock, always have a wrench on the hexagon of the cock next to the lead connection to avoid straining the body of the cock. No leather or rubber washers are needed, as the lead flange makes a tight joint.

SOCKET at top of plug is reenforced at each angle, and is stronger than any other cock made. No danger of splitting the socket.

MALLEABLE TEE HANDLE fits in the socket and is held in place by a brass screw.

See following pages for illustrations and prices.

DIAMOND, PATENT CAP, INVERTED KEY CURB COCKS

HIGH PRESSURE ROUND WAY RED METAL

MALLEABLE TEE HANDLE

IRON PIPE

STOP

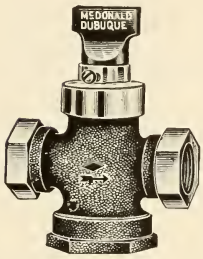


Plate E3061

STOP AND WASTE

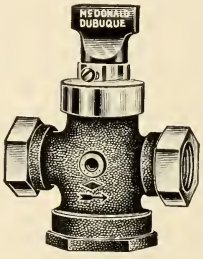


Plate E3062

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough Stops...per dozen	35.40	45.60	58.80	88.80	144.60	233.40	396.00
" Rough Stop and Waste, "	36.00	46.20	59.40	90.00	146.40	236.40	402.00

LEAD AND IRON

STOP

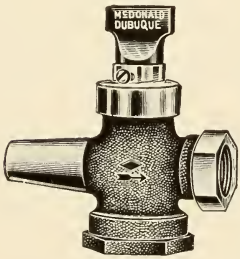


Plate E3063

STOP AND WASTE

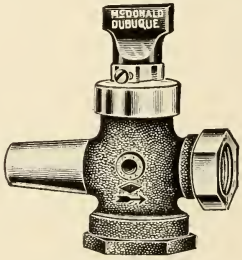


Plate E3064

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	37.80	49.20	63.60	96.00
" " Stop and Waste..... "	38.40	49.80	64.20	97.20

LEAD PIPE

STOP

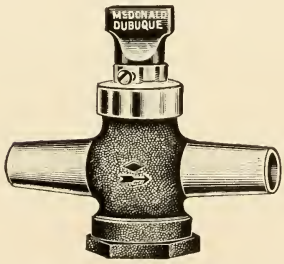


Plate E3065

STOP AND WASTE

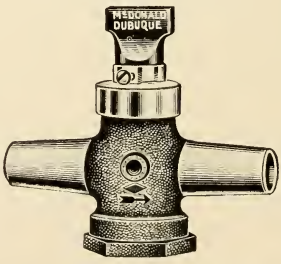


Plate E3066

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	37.80	49.20	63.60	96.00
" " Stop and Waste..... "	38.40	49.80	64.20	97.20

DIAMOND PATENT CAP, INVERTED KEY CURB COCKS

LEAD FLANGE UNION COUPLING

HIGH PRESSURE ROUND WAY RED METAL

MALLEABLE TEE HANDLE

LEAD FLANGE UNION COUPLING AND FEMALE THREAD

STOP

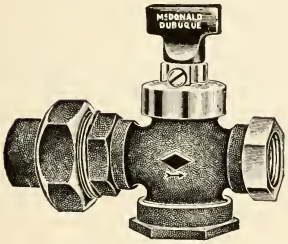


Plate E3071

STOP AND WASTE

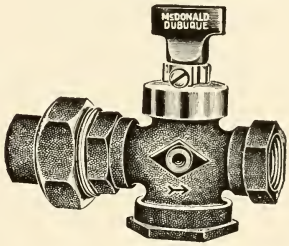


Plate E3072

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	45.00	58.80	75.00	112.80
" " Stop and Waste..... "	45.60	59.40	75.60	114.00

LEAD FLANGE UNION COUPLINGS

STOP

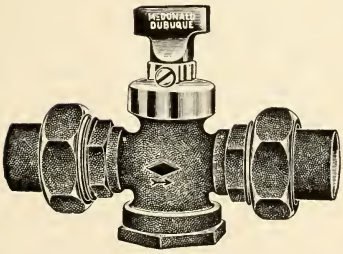


Plate E3073

STOP AND WASTE

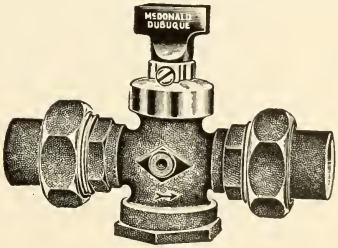


Plate E3074

Size.....inches	½	⅝	¾	1
Price, Rough Stops.....per dozen	54.60	72.00	91.20	136.80
" " Stop and Waste..... "	55.20	72.60	91.80	138.00

Union coupling for extra strong lead pipe.

DIAMOND, PATENT CAP, INVERTED KEY CURB COCKS

MINNEAPOLIS

HIGH PRESSURE ROUND WAY RED METAL

STOP STOP AND WASTE

MALLEABLE TEE HANDLE

IRON PIPE

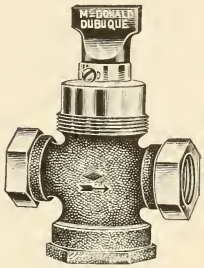


Plate E3081

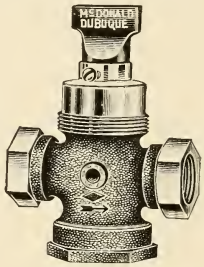


Plate E3082

Size.....inches	½	⅝	¾	1	1¼	1½	2
" Minneapolis Top.... "	1½	1½	1½	2	2½	3	4
Price, Rough, Stops..per dozen	40.20	51.00	64.80	96.60	156.60	251.40	426.00
" Rough, Stop and Waste "	40.80	51.60	65.40	97.80	158.40	254.40	432.00

STOP LEAD AND IRON STOP AND WASTE

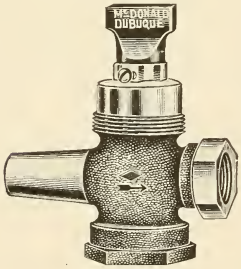


Plate E3083

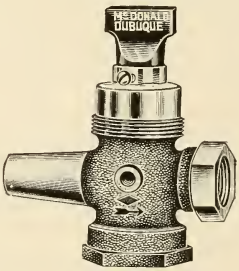


Plate E3084

Size.....inches	½	⅝	¾	1
" Minneapolis Top..... "	1½	1½	1½	2
Price, Rough, Stops.....per dozen	42.60	54.60	69.60	103.80
" " Stop and Waste..... "	43.20	55.20	70.20	105.00

STOP LEAD AND MALE I. P. STOP AND WASTE

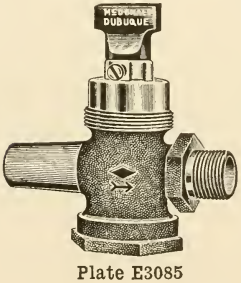


Plate E3085

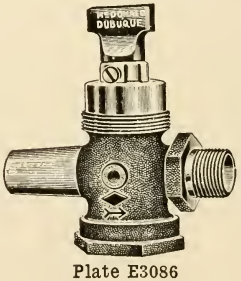


Plate E3086

Size.....inches	½	⅝	¾	1
" Minneapolis Top..... "	1½	1½	1½	2
Price, Rough, Stops.....per dozen	46.20	59.40	74.40	109.80
" " Stop and Waste..... "	46.80	60.00	75.00	111.00

DIAMOND, PATENT CAP, INVERTED KEY CURB COCKS

MINNEAPOLIS

HIGH PRESSURE ROUND WAY RED METAL

MALLEABLE TEE HANDLE

LEAD UNION AND IRON

STOP

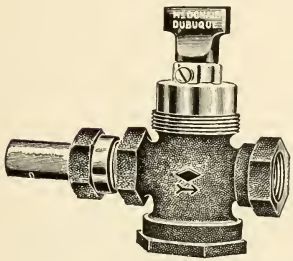


Plate E3091

STOP AND WASTE

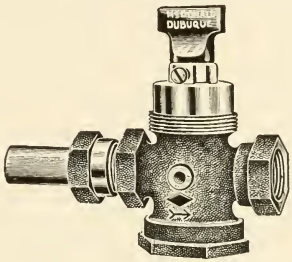


Plate E3092

Size .....inches	½	⅝	¾	1
" Minneapolis Top..... "	1½	1½	1½	2
Price, Rough Stops.....per dozen	49.80	63.60	77.40	112.80
" " Stop and Waste ..... "	50.40	64.20	78.00	114.00

LEAD UNION AND MALE

STOP

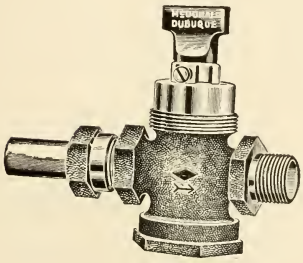


Plate E3093

STOP AND WASTE

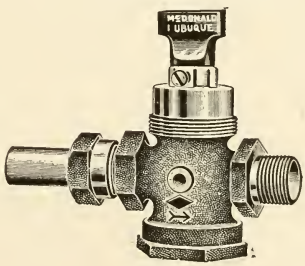


Plate E3094

Size .....inches	½	⅝	¾	1
" Minneapolis Top..... "	1½	1½	1½	2
Price, Rough Stops.....per dozen	53.40	68.40	82.20	118.80
" " Stop and Waste..... "	54.00	69.00	82.80	120.00

End of cock for union coupling is standard iron pipe thread, same size as body. ¾-inch union used on ⅝-inch cock.

DIAMOND PATENT CAP, INVERTED KEY CURB COCKS

MINNEAPOLIS

HIGH PRESSURE ROUND WAY RED METAL

MALLEABLE TEE HANDLE

LEAD PIPE

STOP

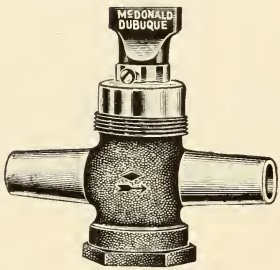


Plate E3101

STOP AND WASTE

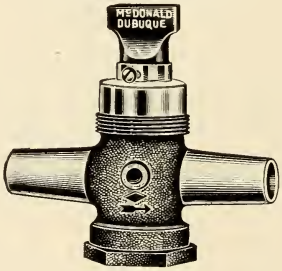


Plate E3102

Size.....inches	½	⅝	¾	1
" Minneapolis Top ..... "	1½	1½	1½	2
Price, Rough Stops.....per dozen	42.60	54.60	69.60	103.80
" " Stop and Waste..... "	43.20	55.20	70.20	105.00

LEAD UNION COUPLINGS

STOP

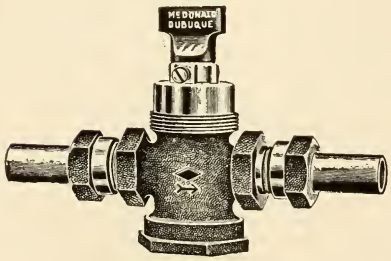


Plate E3103

STOP AND WASTE

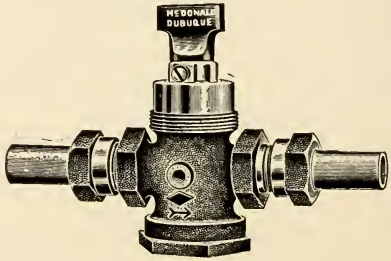


Plate E3104

Size.....inches	½	⅝	¾	1
" Minneapolis Top ..... "	1½	1½	1½	2
Price, Rough Stops.....per dozen	59.40	76.20	90.00	129.00
" Stop and Waste..... "	60.00	76.80	90.60	130.20

End of cock for union couplings is standard iron pipe thread, same size as body. ¾-inch union coupling is used on ⅝-inch cock.

DIAMOND PATENT CAP, INVERTED KEY CURB COCKS

MINNEAPOLIS

LEAD FLANGE UNION COUPLING

HIGH PRESSURE ROUND WAY RED METAL

MALLEABLE TEE HANDLE

LEAD FLANGE UNION COUPLING AND FEMALE THREAD

STOP

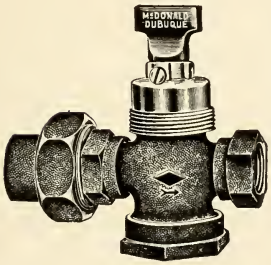


Plate E3111

STOP AND WASTE

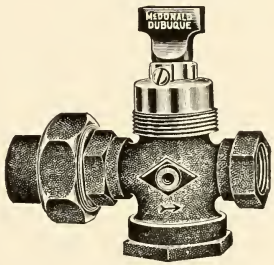


Plate E3112

Size.....inches	½	⅝	¾	1
" Minneapolis Top..... "	1½	1½	1½	2
Price, Rough Stops.....per dozen	49.80	64.20	81.00	120.60
" " Stop and Waste..... "	50.40	64.80	81.60	121.80

LEAD FLANGE UNION COUPLINGS

STOP

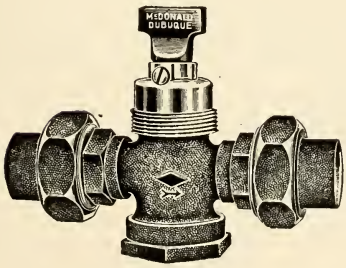


Plate E3113

STOP AND WASTE

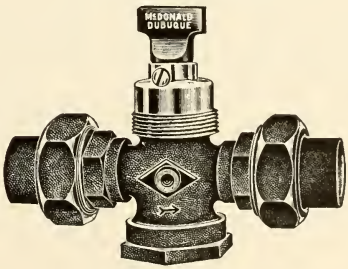


Plate E3114

Size.....inches	½	⅝	¾	1
" Minneapolis Top..... "	1½	1½	1½	2
Price, Rough Stops.....per dozen	59.40	77.40	97.20	144.60
" " Stop and Waste..... "	60.00	78.00	97.80	145.80

Union coupling for extra strong lead pipe.

CORPORATION STOP COCKS

MUELLER MACHINE

RED METAL SCREW PLUG ROUND WAY

WITHOUT COUPLING

Inlet End Threaded to Fit Mueller Machine. Outlet End Threaded Iron Pipe, Next Size Larger Than Body

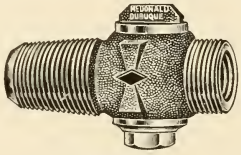


Plate E3121

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough..per dozen	17.40	23.40	30.00	48.00	111.00	180.00	300.00

STRAIGHT UNION COUPLING

Inlet End Threaded to Fit Mueller Machine. Outlet End Threaded to Fit Mueller Machine

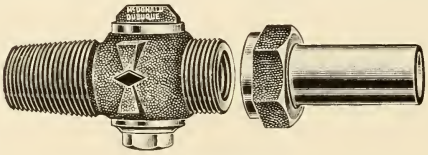


Plate E3122

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough..per dozen	19.20	27.00	34.20	54.00	120.00	192.00	318.00

EIGHTH BEND UNION COUPLING

Inlet End Threaded to Fit Mueller Machine. Outlet End Threaded to Fit Mueller Machine

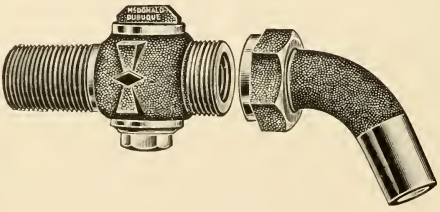


Plate E3123

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough..per dozen	19.20	27.00	34.20	54.00	120.00	192.00	318.00

Quarter bend couplings furnished at the same prices as eighth bend.

Hexagon plug can be furnished if desired. Fiber gaskets furnished with all union couplings.

CORPORATION STOP COCKS

FOR MUELLER MACHINE

RED METAL ROUND WAY

WITHOUT COUPLING

Inlet and Outlet Threaded Iron Pipe, Same Size as Body

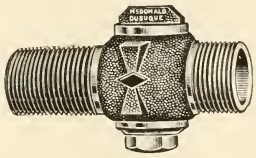


Plate E3131

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	17.40	23.40	30.00	48.00	111.00	180.00	300.00

SCREW PLUG

STRAIGHT UNION COUPLING

Inlet End Threaded Iron Pipe, Same Size as Body. Outlet End Threaded to Fit Mueller Machine

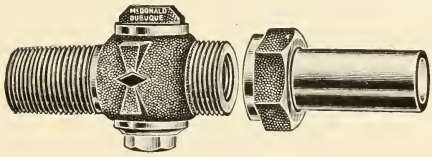


Plate E3132

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	19.20	27.00	34.20	54.00	120.00	192.00	318.00

EIGHTH BEND UNION COUPLING

Inlet End Threaded Iron Pipe, Same Size as Body. Outlet End Threaded to Fit Mueller Machine

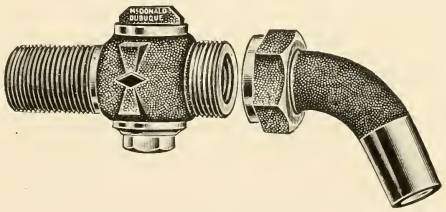


Plate E3133

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	19.20	27.00	34.20	54.00	120.00	192.00	318.00

Quarter bend couplings furnished at the same price as eighth bend.
Fiber gaskets furnished with all union couplings.

CORPORATION STOP COCKS

PAYNE MACHINE

RED METAL SCREW PLUG ROUND WAY

WITHOUT COUPLINGS

Inlet End Threaded Iron Pipe, Same Size as Body. Outlet End Threaded Iron Pipe, Next Size Larger Than Body

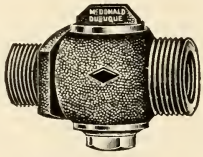


Plate E3141

Size ..... inches	½	⅝	¾	1
Price, Rough ..... per dozen	19.20	26.40	34.20	54.00

STRAIGHT UNION COUPLING

Inlet End Threaded Iron Pipe, Same Size as Body. Outlet End Threaded Iron Pipe, Next Size Larger Than Body

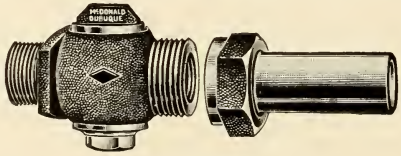


Plate E3142

Size ..... inches	½	⅝	¾	1
Price, Rough ..... per dozen	21.00	30.00	38.40	60.00

EIGHTH BEND UNION COUPLING

Inlet End Threaded Iron Pipe, Same Size as Body. Outlet End Threaded Iron Pipe, Next Size Larger Than Body

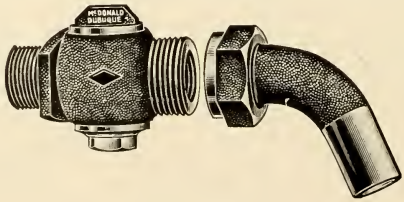


Plate E3143

Size ..... inches	½	⅝	¾	1
Price, Rough ..... per dozen	21.00	30.00	38.40	60.00

Quarter bend couplings furnished at the same price as eighth bend.
Fiber gaskets furnished with all union couplings.

CORPORATION STOP COCKS

FOR PAYNE MACHINE

RED METAL ROUND WAY

WITHOUT SCREW PLUG

WITHOUT UNION COUPLING

Inlet and Outlet Ends Threaded Iron Pipe, Same Size as Body

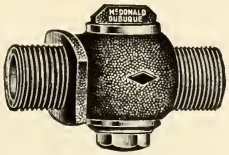


Plate E3151

Size.....inches	½	⅝	¾	1
Price, Rough.....per dozen	19.20	26.40	34.20	54.00

HEXAGON ON INLET END

FOR MUELLER MACHINE

RED METAL ROUND WAY

WITHOUT SCREW PLUG

WITHOUT COUPLING

Inlet and Outlet Ends Threaded Iron Pipe, Same Size as Body

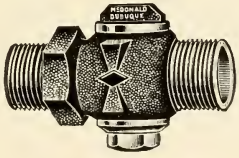


Plate E3152

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	19.20	26.40	34.20	54.00	111.00	180.00	300.00

EIGHTH BEND UNION COUPLING

Inlet End Threaded Iron Pipe, Same Size as Body. Outlet End Threaded Iron Pipe, Next Size Larger Than Body

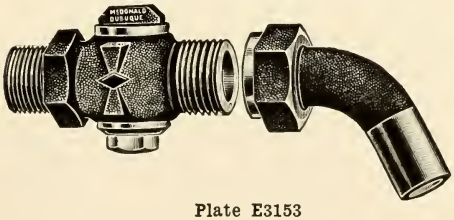


Plate E3153

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	21.00	30.00	38.40	60.00	120.00	192.00	318.00

Quarter bend couplings furnished at the same price as eighth bend.
Fiber gasket furnished with union couplings.

CORPORATION STOP COCKS

FOR WOOD MAIN

RED METAL ROUND WAY

WITHOUT COUPLING

Inlet End Screwed for Wood. Outlet End Threaded Iron Pipe, Same Size as Body

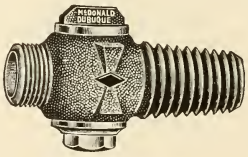


Plate E3161

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	22.20	28.80	36.60	58.80	130.80	210.00	348.00

STRAIGHT UNION COUPLING

Inlet End Screwed for Wood. Outlet End Threaded to Fit Mueller Machine

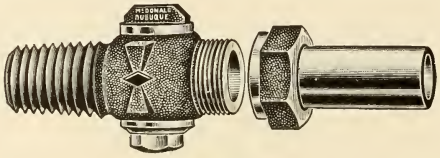


Plate E3162

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	24.00	32.40	40.80	64.80	139.80	222.00	366.00

EIGHTH BEND UNION COUPLING

Inlet End Screwed for Wood. Outlet End Threaded to Fit Mueller Machine

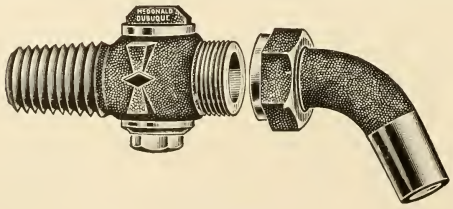


Plate E3163

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	24.00	32.40	40.80	64.80	139.80	222.00	366.00

Quarter bend couplings furnished at the same price as eighth bend.
Fiber gaskets furnished with all union couplings.

CORPORATION STOP COCKS

LEAD FLANGE

RED METAL SCREW PLUG ROUND WAY

MUELLER MACHINE

Inlet End Threaded to Fit Mueller Machine

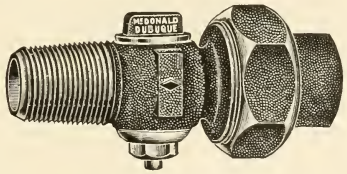


Plate E3171

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough...per doz.	27.00	36.60	46.20	72.00	153.00	240.00	387.00

MUELLER MACHINE

Inlet End Threaded Iron Pipe, Same Size as Body

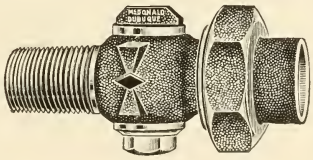


Plate E3172

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per doz.	27.00	36.60	46.20	72.00	153.00	240.00	387.00

PAYNE MACHINE

Inlet End Threaded Iron Pipe, Same Size as Body

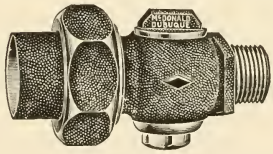


Plate E3173

Size.....inches	½	⅝	¾	1
Price, Rough.....per dozen	28.80	39.60	50.40	78.00

Union couplings for extra strong lead pipe.

CORPORATION STOP COCKS

LEAD FLANGE

RED METAL ROUND WAY

MUELLER MACHINE

Without Screw Plug. Inlet End Threaded Iron Pipe, Same Size as Body

Plate E3181

Size.....inches	½	⅝	¾	1
Price, Rough.....per dozen	27.00	36.60	46.20	72.00

MUELLER MACHINE

HEXAGON ON INLET END

Without Screw Plug. Inlet End Threaded Iron Pipe, Same Size as Body

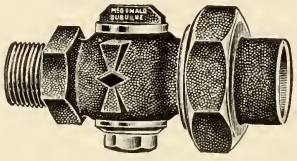


Plate E3182

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	28.80	39.60	50.40	78.00	153.00	240.00	387.00

WOOD MAIN

Without Screw Plug

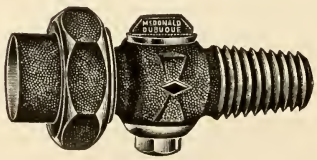


Plate E3183

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....per dozen	31.80	42.00	52.80	82.80	172.80	270.00	435.00

Union couplings for extra strong lead pipe.

SERVICE CONNECTIONS

DIAMOND MULTIPLE SERVICE BRANCH

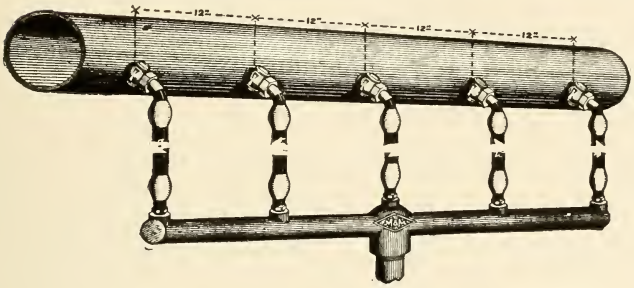


Plate E3191

These branches are used in making service connections larger than 1 inch, as most water companies will not permit their mains to be tapped larger than 1 inch, because of the danger of splitting the mains if weakened by a larger tapping, yet it is often necessary to provide a service of greater capacity, and when this is true several 1-inch tappings are made and connected at the outlet end for larger service. It is expensive as well as inconvenient to insert a cast-iron tee in the main, as this would necessitate cutting the main and shutting off the water, therefore, these service branches will be found of great advantage in this particular.

This style of service branch is better and more convenient than any connection ever before offered to the trade. The connections run lengthwise with the main instead of crosswise, and as a consequence, do not require such large excavations. Furthermore, the regular lead service connection is used in conjunction with this service branch. It is made of the best grade cast iron and will last as long as the water main itself, and is not subject to bending or twisting as is the case with other service branches. It is symmetrical, increasing in size toward the main outlet pipe, providing a good flow of water. The outlets are made of various sizes so that the supply from the several branches in each particular instance will be equal in volume and capacity to the outlet pipe.

The following prices are for the multiple service branch only, the lead service connections being extra.

Number....branches	2	3	4	5	6	7	8
Size.....outlet	1¼	1½	2	2½	2½	3	3
" .....inlets	1	1	1	1	1	1	1
Price.....each	**4.00**	**6.00**	**8.00**	**10.00**	**12.00**	**14.00**	**16.00**

LEAD SERVICE CONNECTIONS

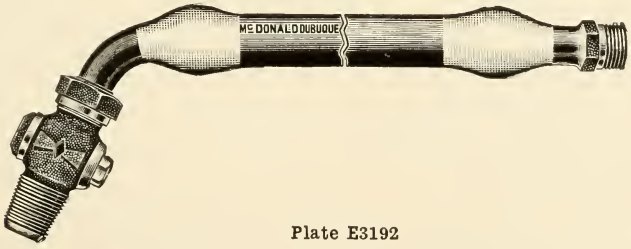


Plate E3192

Extra strong lead pipe; corporation stop cock with eighth bend coupling wiped on one end and Diamond red metal soldering nipple wiped on the other end.

Size.....inches	½	⅝	¾	1	1¼	1½	2
Length Lead Pipe "	18	18	18	18	24	30	36
Price.....each	**5.25**	**6.25**	**7.25**	**10.75**	**19.50**	**31.00**	**48.50**

Furnished with quarter bend couplings at the same price.

SERVICE CONNECTIONS, COUPLINGS, ETC.

LEAD FLANGE SERVICE CONNECTIONS

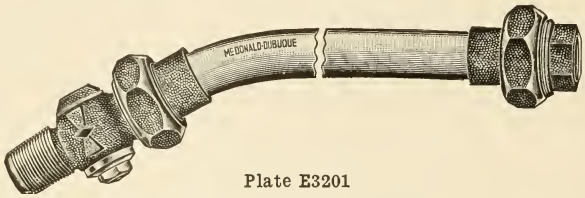


Plate E3201

Extra strong lead pipe; corporation, lead flange, stop cock on one end and lead flange union coupling (lead and female iron pipe) on the other end.

Size.....inches	½	⅝	¾	1	1¼	1½	2
Length Lead Pipe..... "	18	18	18	18	24	30	36
Price.....each	5.25	6.25	7.25	10.75	19.50	31.00	48.50

LEAD FLANGE UNION COUPLINGS

RED METAL

LEAD AND FEMALE THREAD

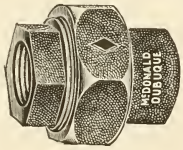


Plate E3202

LEAD PIPE BOTH ENDS

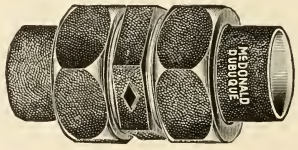


Plate E3203

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Lead and Female, Rough. per doz.	10.20	15.60	18.00	24.00	45.60	60.00	90.00
" " Both Ends, Rough.. "	21.00	30.00	35.40	46.80	90.00	111.00	171.00

SWEDGING TOOL

For making lead flange connections.

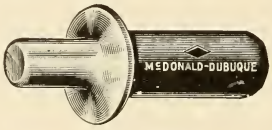


Plate E3204

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price, Rough.....each	1.00	1.05	1.20	1.50	1.90	2.50	3.60

WOOD MAIN NIPPLES

Coarse Taper Thread for Wood Main and Iron Pipe Thread at Other End

MALE THREAD

Plate E3205

FEMALE THREAD

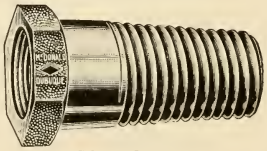


Plate E3206

Size.....inches	½	⅝	¾	1
Price, Male, Rough.....per dozen	4.20	6.00	6.00	8.40
" Female, " ..... "	4.80	7.20	7.20	9.60

LEVER HANDLE GROUND KEY BIBBS

IRON PIPE

PLAIN

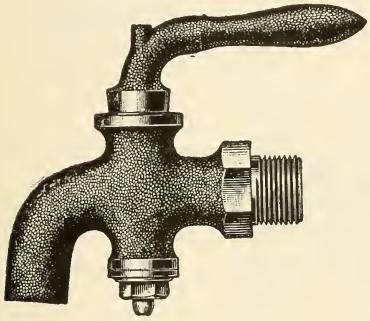


Plate E3211

HOSE

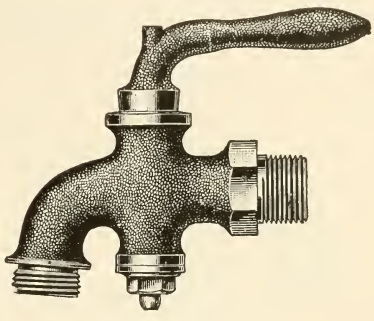


Plate E3212

PLAIN BIBBS

Size.....inches	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough.....per doz.	19.80	20.40	21.00	29.40	36.00	52.80	89.40	149.40	258.00
" Finished..... "	24.60	25.20	25.80	35.40	45.00	64.80	107.40	179.40	300.00
" Nickel-plated.. "	29.40	30.00	30.60	41.40	54.00	76.80	125.40	209.40	342.00

HOSE BIBBS

Size.....inches	..	..	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough.....per doz.	.....	.....	24.00	32.40	39.00	60.00	100.20	164.40	280.20
" Finished..... "	.....	.....	28.80	38.40	48.00	72.00	118.20	194.40	322.20
" Nickel-plated.. "	.....	.....	33.60	44.40	57.00	84.00	136.20	224.40	364.20

S. O. T.

PLAIN

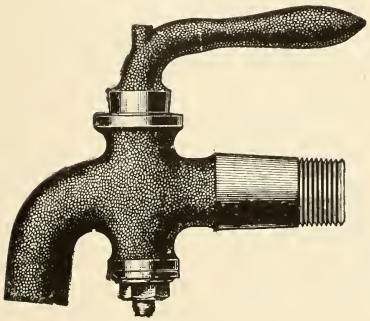


Plate E3213

HOSE

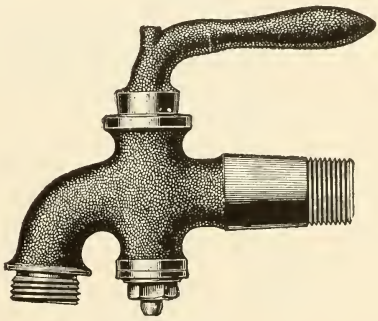


Plate E3214

PLAIN BIBBS

Size.....inches	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough.....per doz.	22.80	23.40	32.40	40.20	60.00	100.20	164.40	288.00
" Finished..... "	27.60	28.20	38.40	49.20	72.00	118.20	194.40	330.00
" Nickel-plated..... "	32.40	33.00	44.40	58.20	84.00	136.20	224.40	372.00

HOSE BIBBS

Size.....inches	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough.....per doz.	.....	26.40	35.40	43.20	67.20	111.00	179.40	310.20
" Finished..... "	.....	31.20	41.40	52.20	79.20	129.00	209.40	352.20
" Nickel-plated..... "	.....	36.00	47.40	61.20	91.20	147.00	239.40	394.20

LEVER HANDLE GROUND KEY BIBBS

LEAD PIPE

PLAIN

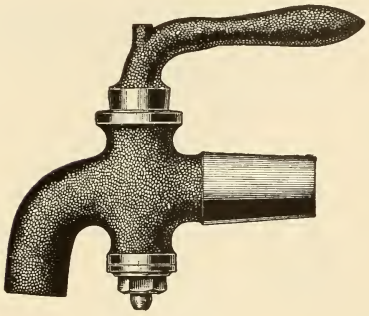


Plate E3221

HOSE

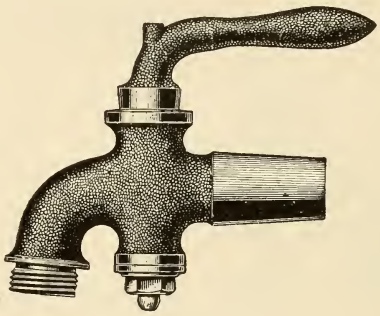


Plate E3222

PLAIN BIBBS

Size.....inches	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough.....per doz.	21.00	21.60	22.20	31.20	38.40	56.40	94.80	158.40	273.00
" Finished..... "	25.80	26.40	27.00	37.20	47.40	68.40	112.80	188.40	315.00
" Nickel-plated.. "	30.60	31.20	31.80	43.20	56.40	80.40	130.80	218.40	357.00

HOSE BIBBS

Size.....inches	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Price, Rough.....per doz.	.....	.....	25.20	34.20	41.40	63.60	105.60	173.40	295.20
" Finished..... "	.....	.....	30.00	40.20	50.40	75.60	123.60	203.40	337.20
" Nickel-plated.. "	.....	.....	34.80	46.20	59.40	87.60	141.60	233.40	379.20
Add for Screwed for Wood "	.....	.....	3.60	3.60	4.20	7.20	14.40	21.00	33.00

SOCKET HEAD, MALLEABLE HANDLE

IRON PIPE

PLAIN

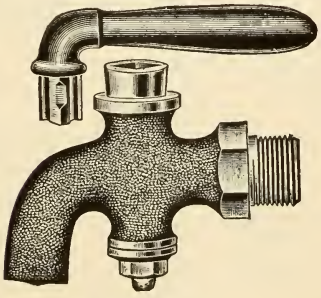


Plate E3223

HOSE

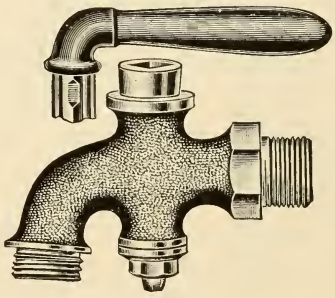


Plate E3224

PLAIN BIBBS

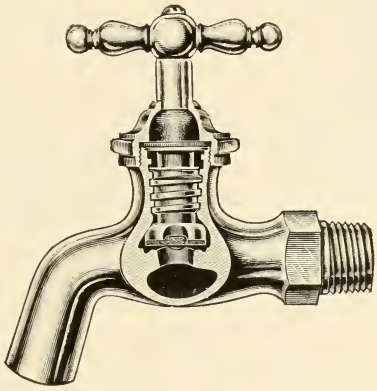
Size.....inches	1/2	5/8	3/4	1
Price, Rough.....per dozen	21.00	29.40	36.00	52.80
" Finished..... "	25.80	35.40	45.00	64.80
" Nickel-plated..... "	30.60	41.40	54.00	76.80

HOSE BIBBS

Size.....inches	1/2	5/8	3/4	1
Price, Rough.....per dozen	24.00	32.40	39.00	60.00
" Finished..... "	28.80	38.40	48.00	72.00
" Nickel-plated..... "	33.60	44.40	57.00	84.00
Add for brass set screw to fasten handle. "	.60	.60	.60	1.20

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL



Our special dome cap compression bibbs are all that the term special implies and more.

They are cast from the very best grade of red metal, giving them a close tough fiber that will withstand excessive pressure, a color that is most attractive and a surface that takes a much better finish or polish than any other grade of metal.

Red metal should not be confused with ordinary brass as it is a costlier and better mixture in every way and enters into the construction of only the highest grade of pressure work.

The detail of construction is well shown in the above sectional illustration, but attention may nevertheless be called to a few important features.

The disc is a good grade of hard rubber (not fiber) held rigidly in place by a set screw, and being imbedded in the brass stem it cannot spread, but retains its shape permanently.

The screw on the stem is large and heavy so that a half turn of the handle insures practically a full water way and is therefore as nearly quick opening as is practical in compression bibbs.

A brass washer countersinks into the top of the body, fitting snugly, also a close fit around the stem, while immediately above is a fiber washer resting on the top of body and overlapping the brass washer and likewise fitting tightly around the stem; surmounting both is a conical shaped cloth insertion packing which the cap presses into place and which positively prevents leakage around the stem.

The handle is tapered to fit the stem, making a much neater finish at this point than the usual square finish and is held rigidly in place by a brass set screw. By this method of attaching the handle, it may be placed directly across the body when the bibb is closed and this is its proper position.

The walls of the body are thick and strong, the design neat and symmetrical, the dome cap fanciful and attractive, as is also the handle, all combining to make this a very handsome bibb, merging attractiveness, utility and durability in a manner to suit the most exacting.

See following pages for list of prices, sizes and patterns of these bibbs.

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

IRON PIPE

PLAIN

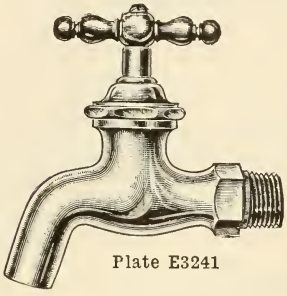


Plate E3241

HOSE

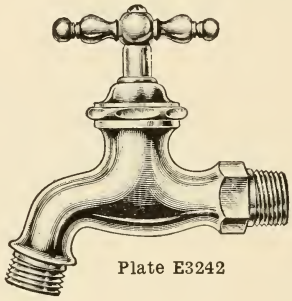


Plate E3242

PLAIN BIBBS

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Rough ..... per dozen	16.80	17.40	22.80	30.60	54.00
" Finished ..... "	18.60	19.80	25.20	33.00	60.00
" Nickel-plated ..... "	22.20	23.40	28.80	37.20	66.00

HOSE BIBBS

Price, Rough ..... per dozen	.....	20.40	25.80	33.60	61.20
" Finished ..... "	.....	22.80	28.20	36.00	67.20
" Nickel-plated ..... "	.....	26.40	31.80	40.20	73.20

S. O. T. WITH HEXAGON

PLAIN

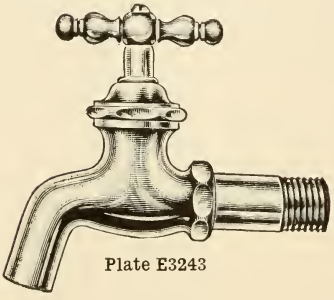


Plate E3243

HOSE

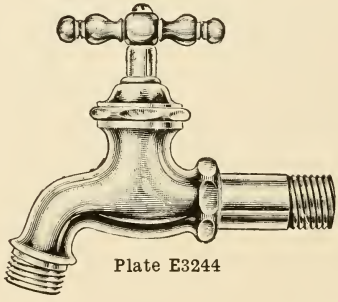


Plate E3244

PLAIN BIBBS

Size ..... inches	3/8	1/2x3/8	1/2	5/8x1/2	5/8	3/4	1
Price, Rough ..... per dozen	21.00	21.60	21.60	27.60	27.60	36.60	64.20
" Finished ..... "	22.80	24.00	24.00	30.00	30.00	39.00	70.20
" Nickel-plated .... "	26.40	27.60	27.60	33.60	33.60	43.20	76.20

HOSE BIBBS

Price, Rough ..... per dozen	.....	24.60	24.60	30.60	30.60	39.60	71.40
" Finished ..... "	.....	27.00	27.00	33.00	33.00	42.00	77.40
" Nickel-plated .... "	.....	30.60	30.60	36.60	36.60	40.20	83.40

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

WITH HEXAGON AND SET SCREW FLANGE

IRON PIPE

PLAIN

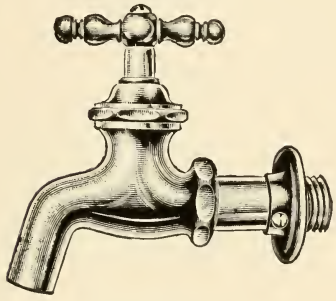


Plate E3251

HOSE

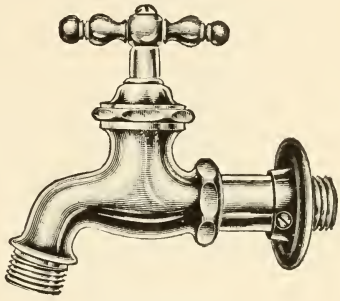


Plate E3252

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	29.40	36.00	45.60
" Nickel-plated ..... "	33.00	39.60	49.80

HOSE BIBBS

Price, Finished ..... per dozen	32.40	39.00	48.60
" Nickel-plated ..... "	36.00	42.60	52.80

WITH HEXAGON AND ADJUSTABLE, SCREWED, SLEEVE FLANGE

IRON PIPE

PLAIN

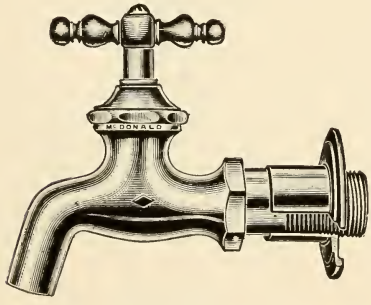


Plate E3253

HOSE

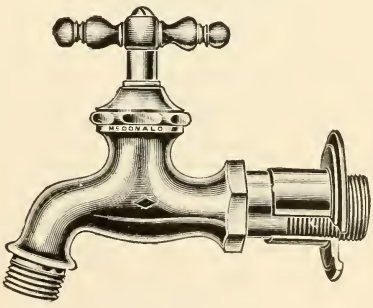


Plate E3254

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	32.40	40.80
" Nickel-plated ..... "	36.00	44.40

HOSE BIBBS

Price, Finished ..... per dozen	35.40	43.80
" Nickel-plated ..... "	39.00	47.40

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

SOLID FLANGE, MALE, WITH HEXAGON

PLAIN

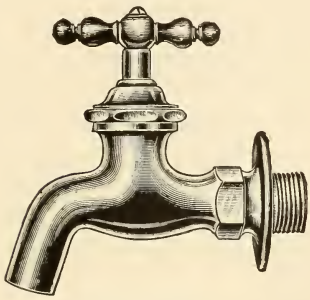


Plate E3261

HOSE

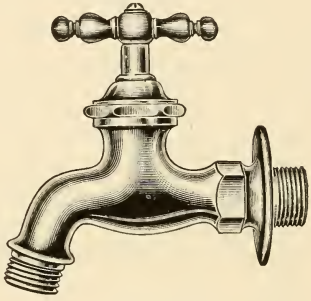


Plate E3262

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	27.60	34.20
" Nickel-plated ..... "	31.20	37.80

HOSE BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	30.60	37.20
" Nickel-plated ..... "	34.20	40.80

SOLID FLANGE, FEMALE, WITH HEXAGON

PLAIN

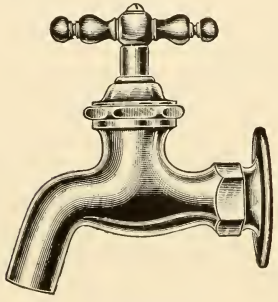


Plate E3263

HOSE

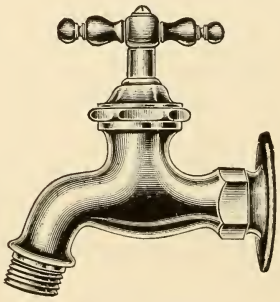


Plate E3264

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	25.80	32.40
" Nickel-plated ..... "	29.40	36.00

HOSE BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	28.80	35.40
" Nickel-plated ..... "	32.40	39.00

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

CHINA INDEXED, FOUR-BALL HANDLE

IRON PIPE

PLAIN

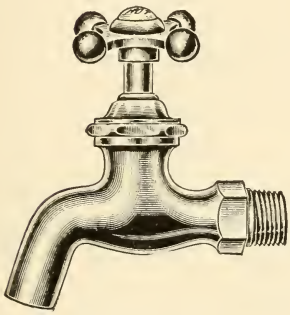


Plate E3271

HOSE

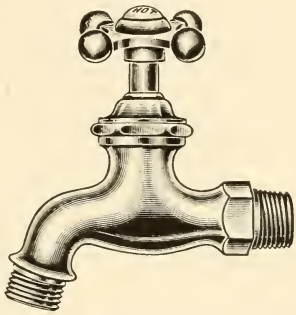


Plate E3272

PLAIN BIBBS

Size.....inches	½	⅝	¾
Price, Finished .....per dozen	28.80	33.60	41.40
" Nickel-plated..... "	32.40	37.20	45.60

HOSE BIBBS

Price, Finished.....per dozen	31.80	36.60	44.40
" Nickel-plated ..... "	35.40	40.20	48.60

S. O. T. WITH HEXAGON

PLAIN

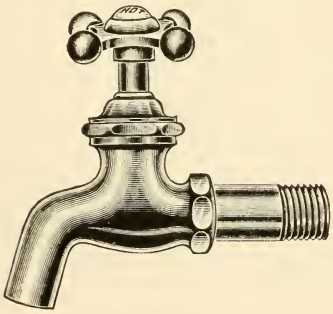


Plate E3273

HOSE

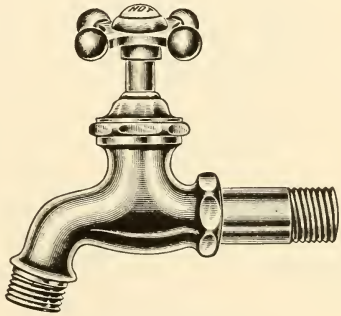


Plate E3274

PLAIN BIBBS

Size.....inches	½x⅜	½	⅝x½	⅝	¾
Price, Finished .....per dozen	33.00	33.00	38.40	38.40	47.40
" Nickel-plated..... "	36.60	36.60	42.00	42.00	51.60

HOSE BIBBS

Price, Finished .....per dozen	36.00	36.00	41.40	41.40	50.40
" Nickel-plated..... "	39.60	39.60	45.00	45.00	54.60

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL
CHINA INDEXED, FOUR BALL HANDLE

WITH HEXAGON AND SET SCREW FLANGE IRON PIPE

PLAIN

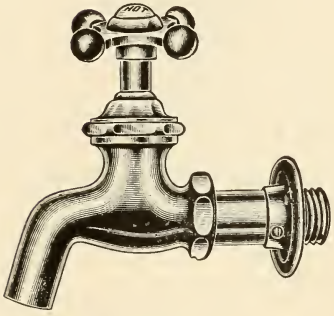


Plate E3281

HOSE

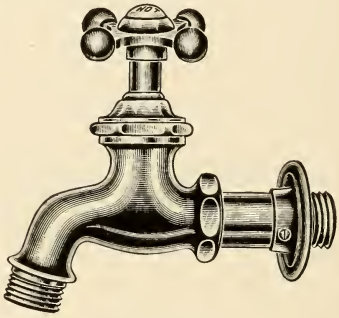


Plate E3282

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	38.40	44.40	54.00
" Nickel-plated ..... "	42.00	48.00	58.20

HOSE BIBBS

Price, Finished ..... per dozen	41.40	47.40	57.00
" Nickel-plated ..... "	45.00	51.00	61.20

WITH HEXAGON AND ADJUSTABLE, SCREWED SLEEVE FLANGE IRON PIPE

PLAIN

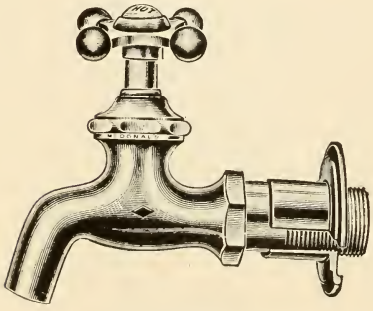


Plate E3283

HOSE

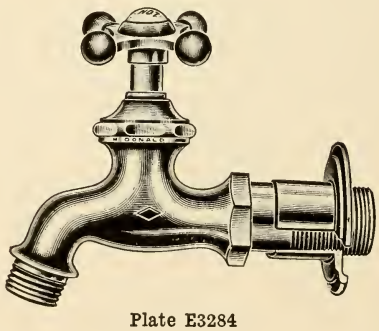


Plate E3284

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	41.40	49.20
" Nickel-plated ..... "	45.00	52.80

HOSE BIBBS

Price, Finished ..... per dozen	44.40	52.20
" Nickel-plated ..... "	48.00	55.80

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

CHINA INDEXED, FOUR-BALL HANDLE

SOLID FLANGE, MALE, WITH HEXAGON

PLAIN

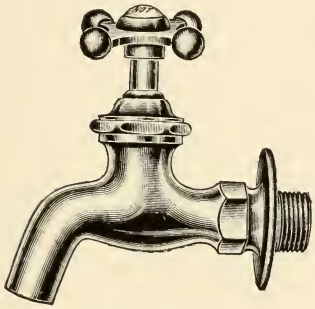


Plate E3291

HOSE

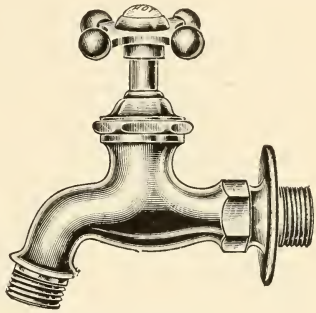


Plate E3292

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	36.60	42.60
" Nickel-plated ..... "	40.20	46.20

HOSE BIBBS

Price, Finished ..... "	39.60	45.60
" Nickel-plated ..... "	43.20	49.20

SOLID FLANGE, FEMALE, WITH HEXAGON

PLAIN

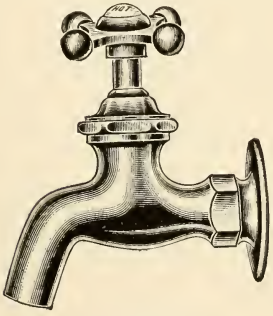


Plate E3293

HOSE

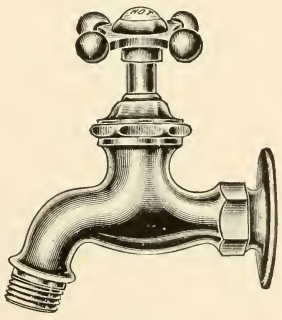


Plate E3294

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	34.80	40.80
" Nickel-plated ..... "	38.40	44.40

HOSE BIBBS

Price, Finished ..... "	37.80	43.80
" Nickel-plated ..... "	41.40	47.40

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

CHINA TEE HANDLE

IRON PIPE

PLAIN

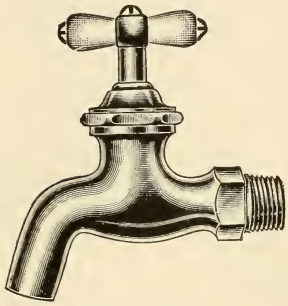


Plate E3301

HOSE

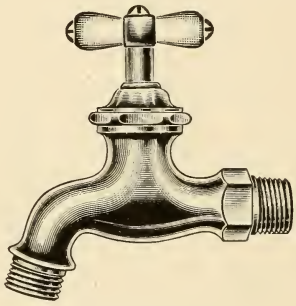


Plate E3302

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	32.00	38.40	46.20
" Nickel-plated ..... "	36.60	42.00	50.40

HOSE BIBBS

Price, Finished ..... per dozen	36.00	41.40	49.20
" Nickel-plated ..... "	39.60	45.00	53.40

S. O. T. WITH HEXAGON

PLAIN

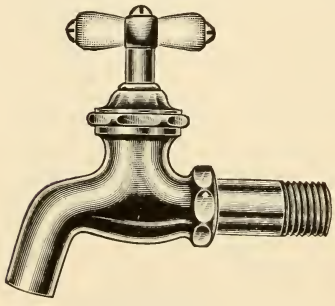


Plate E3303

HOSE

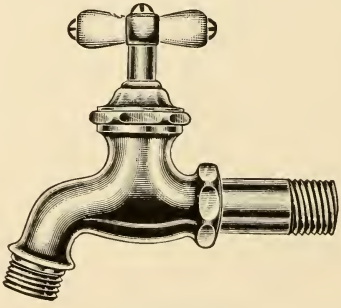


Plate E3304

PLAIN BIBBS

Size ..... inches	½x⅜	½	⅝x½	⅝	¾
Price, Finished ..... per dozen	37.20	37.20	43.20	43.20	52.20
" Nickel-plated ..... "	40.80	40.80	46.80	46.80	56.40

HOSE BIBBS

Price, Finished ..... per dozen	40.20	40.20	46.20	46.20	55.20
" Nickel-plated ..... "	43.80	43.80	49.80	49.80	59.40

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

CHINA TEE HANDLE

WITH HEXAGON AND SET SCREW FLANGE IRON PIPE

PLAIN

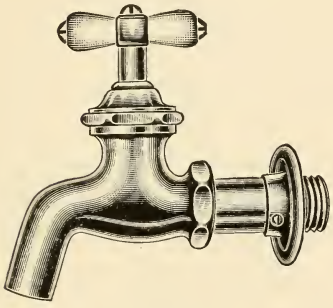


Plate E3311

HOSE

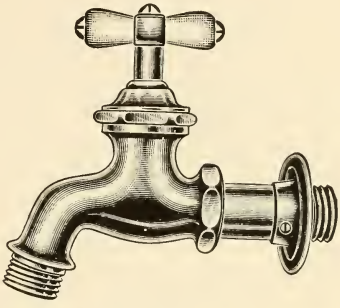


Plate E3312

PLAIN BIBBS

Size.....inches	½	⅝	¾
Price, Finished.....per dozen	42.60	49.20	58.80
" Nickel-plated..... "	46.20	52.80	63.00

HOSE BIBBS

Price, Finished.....per dozen	45.60	52.20	61.80
" Nickel-plated..... "	49.20	55.80	66.00

WITH HEXAGON AND ADJUSTABLE, SCREWED, SLEEVE FLANGE IRON PIPE

PLAIN

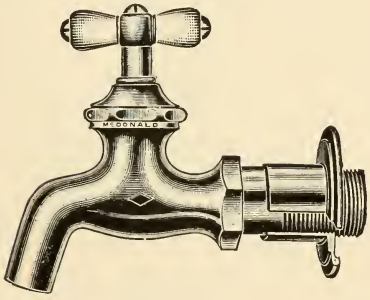


Plate E3313

HOSE

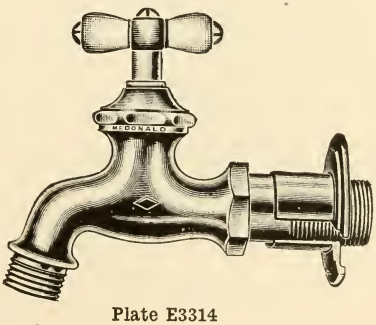


Plate E3314

PLAIN BIBBS

Size.....inches	½	⅝
Price, Finished.....per dozen	45.60	54.00
" Nickel-plated..... "	49.20	57.60

HOSE BIBBS

Price, Finished.....per dozen	48.60	57.00
" Nickel-plated..... "	52.20	60.60

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

CHINA TEE HANDLE

SOLID FLANGE, MALE, WITH HEXAGON

PLAIN

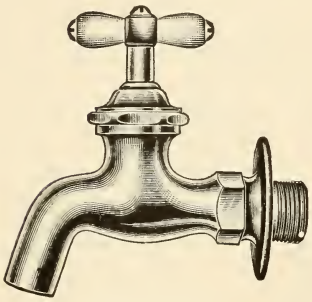


Plate E3321

HOSE

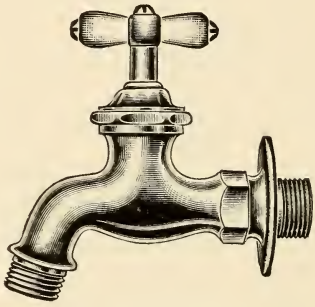


Plate E3322

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	40.80	47.40
" Nickel-plated ..... "	44.80	51.00

HOSE BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	43.80	50.40
" Nickel-plated ..... "	47.40	54.00

SOLID FLANGE, FEMALE, WITH HEXAGON

PLAIN

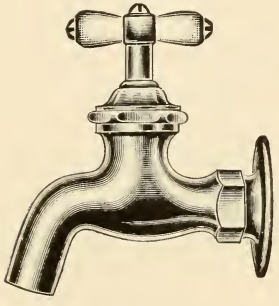


Plate E3323

HOSE

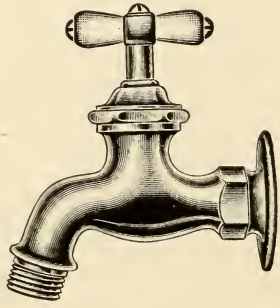


Plate E3324

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	39.00	45.60
" Nickel-plated ..... "	42.60	49.20

HOSE BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	42.00	48.60
" Nickel-plated ..... "	45.60	52.20

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

CHINA CROSS HANDLE

IRON PIPE

PLAIN

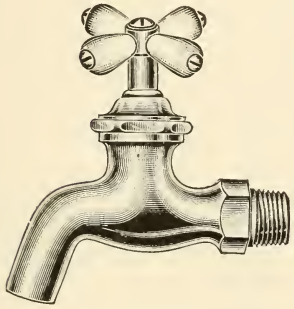


Plate E3331

HOSE

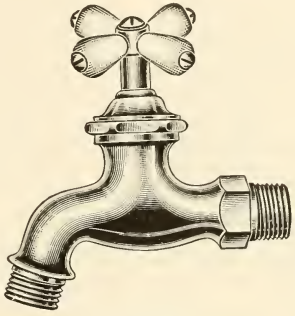


Plate E3332

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	39.60	45.00	52.80
" Nickel-plated ..... "	43.20	48.60	57.00

HOSE BIBBS

Price, Finished ..... per dozen	42.60	48.00	55.80
" Nickel-plated ..... "	46.20	51.60	61.00

S. O. T. WITH HEXAGON

PLAIN

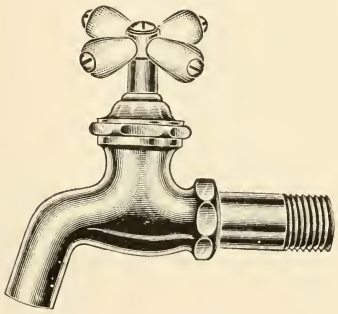


Plate E3333

HOSE

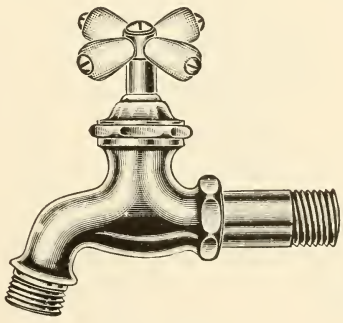


Plate E3334

PLAIN BIBBS

Size ..... inches	½x⅜	½	⅝x½	⅝	¾
Price, Finished ..... per dozen	43.80	43.80	49.80	49.80	58.80
" Nickel-plated ..... "	47.40	47.40	53.40	53.40	63.00

HOSE BIBBS

Price, Finished ..... per dozen	46.80	46.80	52.80	52.80	61.80
" Nickel-plated ..... "	50.40	50.40	56.40	56.40	66.00

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

CHINA CROSS HANDLE

WITH HEXAGON AND SET SCREW FLANGE IRON PIPE

PLAIN

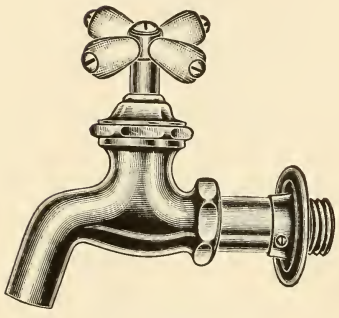


Plate E3341

HOSE

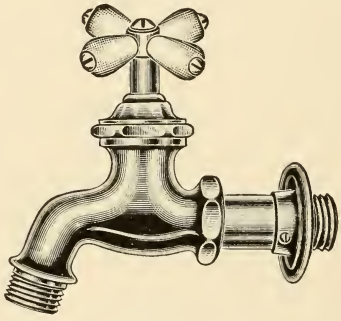


Plate E3342

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	49.20	55.80	65.40
" Nickel-plated ..... "	52.80	59.40	69.60

HOSE BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	52.20	58.80	68.40
" Nickel-plated ..... "	55.80	62.40	72.60

WITH HEXAGON AND ADJUSTABLE, SCREWED, SLEEVE FLANGE IRON PIPE

PLAIN

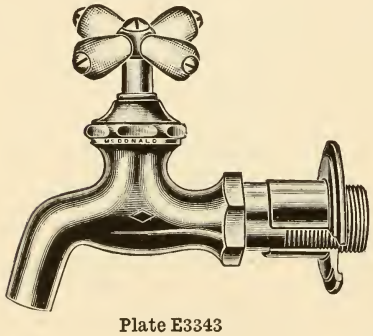


Plate E3343

HOSE

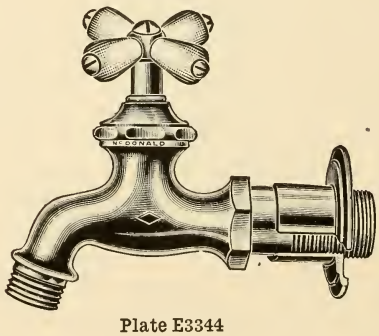


Plate E3344

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	52.20	60.60
" Nickel-plated ..... "	55.80	64.20

HOSE BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	55.20	63.60
" Nickel-plated ..... "	58.80	67.20

SPECIAL DOME CAP COMPRESSION BIBBS

RED METAL

CHINA CROSS HANDLE

SOLID FLANGE, MALE, WITH HEXAGON

PLAIN

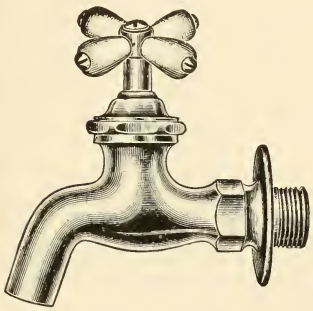


Plate E3351

HOSE

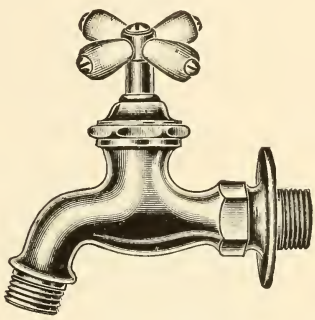


Plate E3352

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	47.40	54.00
" Nickel-plated ..... "	51.00	57.60

HOSE BIBBS

Price, Finished ..... per dozen	50.40	50.40
" Nickel-plated ..... "	54.00	60.60

SOLID FLANGE, FEMALE, WITH HEXAGON

PLAIN

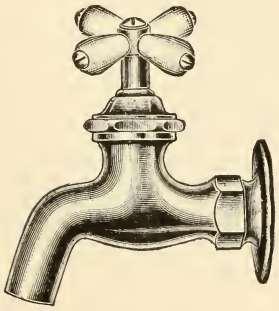


Plate E3353

HOSE

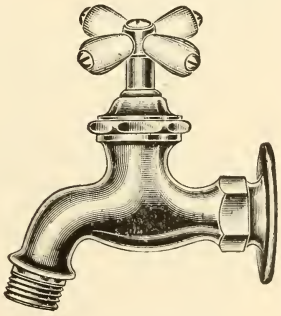


Plate E3354

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	45.60	52.20
" Nickel-plated ..... "	49.20	55.80

HOSE BIBBS

Price, Finished ..... per dozen	48.60	55.20
" Nickel-plated ..... "	52.20	58.80

QUARTER TURN COMPRESSION BIBBS

RED METAL

QUICK OPENING DOME CAP

INDEXED CHINA LEVER HANDLE

IRON PIPE

PLAIN

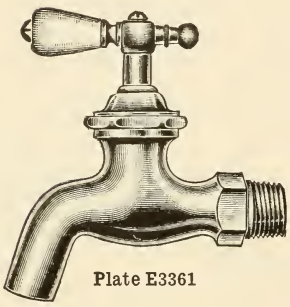


Plate E3361

HOSE

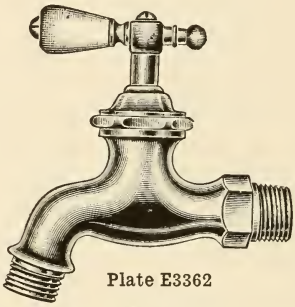


Plate E3362

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	27.60	33.00	42.00
" Nickel-plated ..... "	31.20	36.60	46.20

HOSE BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	30.60	36.00	45.00
" Nickel-plated ..... "	34.20	39.60	49.20
Deduct if with Brass Handles ..... "	6.00	6.00	6.00

S. O. T. WITH HEXAGON

PLAIN

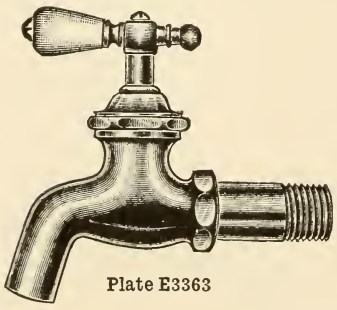


Plate E3363

HOSE

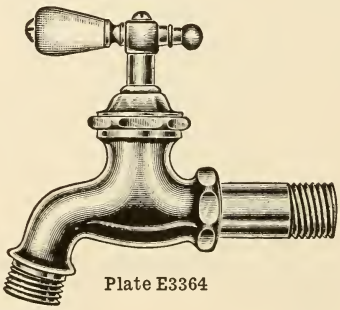


Plate E3364

PLAIN BIBBS

Size ..... inches	½x⅜	½	⅝x½	⅝	¾
Price, Finished ..... per dozen	31.80	31.80	37.80	37.80	48.00
" Nickel-plated ..... "	35.40	35.40	41.40	41.40	52.20

HOSE BIBBS

Size ..... inches	½x⅜	1	⅝x½	⅝	¾
Price, Finished ..... per dozen	34.80	34.80	40.80	40.80	51.00
" Nickel-plated ..... "	38.40	38.40	44.40	44.40	55.20

China handles are furnished plain or indexed hot, cold or city as desired. Specify when ordering.

QUARTER TURN COMPRESSION BIBBS

RED METAL

QUICK OPENING DOME CAP

INDEXED CHINA LEVER HANDLE

WITH HEXAGON AND SET SCREW FLANGE IRON PIPE

PLAIN

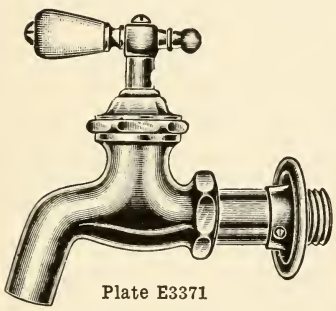


Plate E3371

HOSE

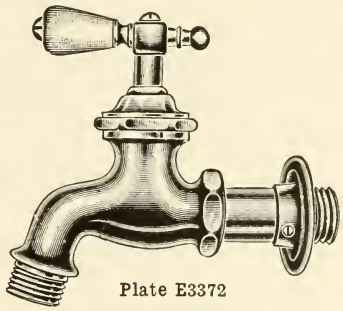


Plate E3372

PLAIN BIBBS

Size.....inches	½	⅝	¾
Price, Finished.....per dozen	37.20	43.80	54.60
" Nickel-plated..... "	40.80	47.40	58.80

HOSE BIBBS

Price, Finished.....per dozen	40.20	46.80	57.60
" Nickel-plated..... "	43.80	54.40	61.80

WITH HEXAGON AND ADJUSTABLE, SCREWED SLEEVE FLANGE IRON PIPE

PLAIN

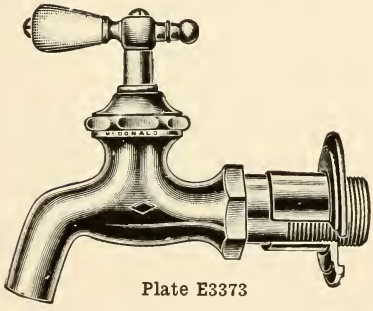


Plate E3373

HOSE

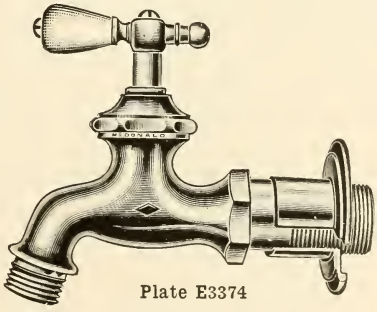


Plate E3374

PLAIN BIBBS

Size.....inches	½	⅝
Price, Finished.....per dozen	40.20	48.60
" Nickel-plated..... "	43.80	52.20

HOSE BIBBS

Price, Finished.....per dozen	43.20	51.60
" Nickel-plated..... "	46.80	55.20

China handles are furnished plain or indexed hot, cold or city as desired. Specify when ordering.

QUARTER TURN COMPRESSION BIBBS

RED METAL

QUICK OPENING DOME CAP

INDEXED CHINA LEVER HANDLE

SOLID FLANGE, MALE, WITH HEXAGON

PLAIN

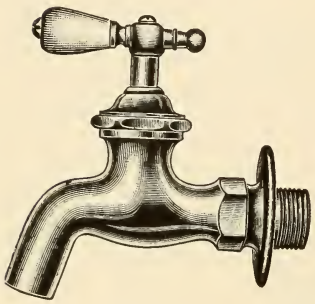


Plate E3381

HOSE

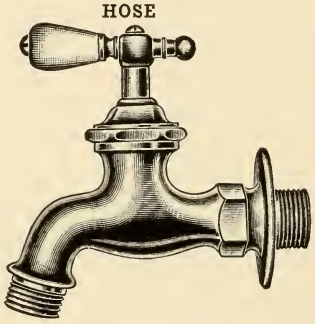


Plate E3382

PLAIN BIBBS

Size	inches	½	⅝
Price, Finished	per dozen	35.40	42.00
" Nickel-plated	"	39.00	45.60

HOSE BIBBS

Price, Finished	per dozen	38.40	45.00
" Nickel-plated	"	42.00	48.00

SOLID FLANGE, FEMALE, WITH HEXAGON

PLAIN

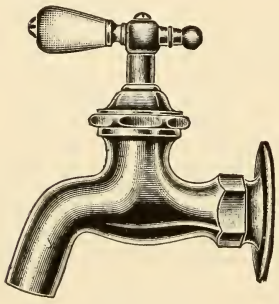


Plate E3383

HOSE

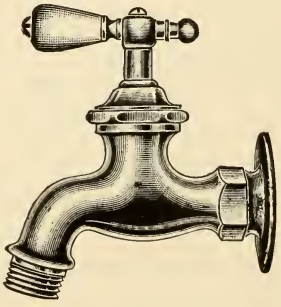


Plate E3384

PLAIN BIBBS

Size	inches	½	⅝
Price, Finished	per dozen	33.60	40.20
" Nickel-plated	"	37.20	43.80

HOSE BIBBS

Price, Finished	per dozen	36.60	43.20
" Nickel-plated	"	40.20	46.80

China handles are furnished plain or indexed hot, cold or city as desired. Specify when ordering.

SHORT PATTERN COMPRESSION BIBBS

HIGH GRADE DOME CAP RED METAL

Short pattern compression bibbs are an innovation, and are certain to become popular because they do not project out so far from the sink back and are less in the way than the regular pattern bibbs. When the sink is used for washing dishes, these short pattern bibbs are greatly appreciated as they interfere less and save breaking of dishes. The angle, at which handle and stem are placed, gives plenty of room for the fingers without any chance of pinching them between the handle and the sink back.

The stem has a square-cut coarse thread which is very durable. A special composition disc, suitable for hot and cold water is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap is the high dome pattern, containing a large, high-grade moulded packing to prevent leakage around the stem.

Measurement from sink back to front of bibb is only 3 inches, nearly 2 inches shorter than the regular flanged bibbs.

HEXAGON, SOLID FLANGE, MALE, IRON PIPE

PLAIN

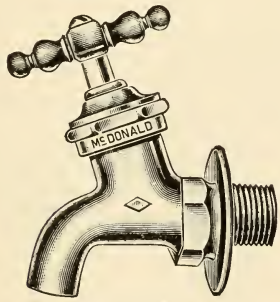


Plate E3391

HOSE

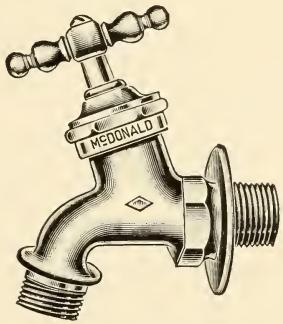


Plate E3392

Size, ½ inch		Finished	Nickel-plated
Price, Plain Bibbs	per dozen	27.60	31.20
" Hose "	"	30.60	34.20

HEXAGON, SOLID FLANGE, FEMALE, IRON PIPE

PLAIN

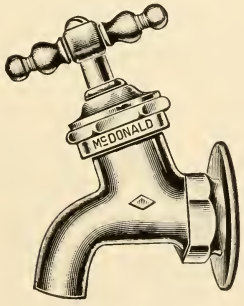


Plate E3393

HOSE

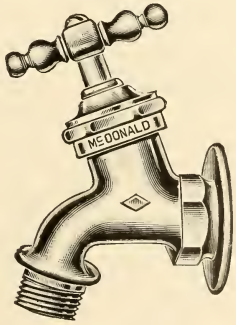


Plate E3394

Size, ½ inch		Finished	Nickel-plated
Price, Plain Bibbs	per dozen	25.80	29.40
" Hose "	"	28.80	32.40

SHORT PATTERN COMPRESSION BIBBS

STANDARD RED METAL

Short pattern compression bibbs are an innovation, and are certain to become popular because they do not project so far from the sink back and are less in the way than the regular pattern. When the sink is used for washing dishes these short pattern bibbs are greatly appreciated as they interfere less and save breaking of dishes. The angle at which handle and stem are placed, gives plenty of room for the fingers, without any chance of pinching them between the handle and the sink back.

The stem has a square-cut coarse thread, which is very durable. A special composition disc, suitable for hot and cold water, is countersunk in the end of the stem to insure long service and freedom from leakage. Cap has a special moulded packing to prevent leakage around the stem.

Measurement from sink back to front of bibb is only 3 inches, nearly 2 inches shorter than regular flanged bibbs.

SOLID FLANGE, MALE, WITH HEXAGON

PLAIN

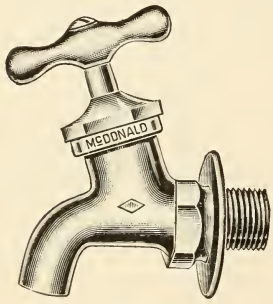


Plate E3401

HOSE

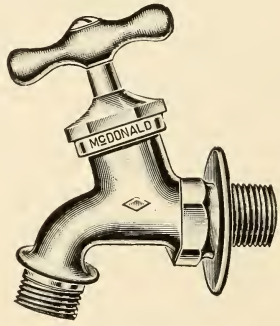


Plate E3402

Size, ½ inch		Finished	Nickel-plated
Price, Plain End	per dozen	27.60	31.20
" Hose "	"	30.60	34.20

SOLID FLANGE, FEMALE, WITH HEXAGON

PLAIN

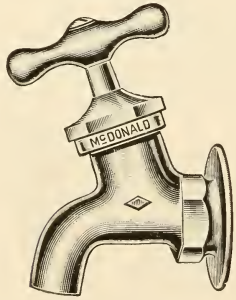


Plate E3403

HOSE

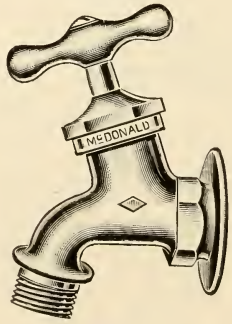


Plate E3404

Size, ½ inch		Finished	Nickel-plated
Price, Plain End	per dozen	25.80	29.40
" Hose "	"	28.80	32.40

STANDARD COMPRESSION BIBBS

RED METAL

The stem has a square cut, coarse thread which is very durable. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap has a special molded packing to prevent leakage around the stem.

IRON PIPE

PLAIN

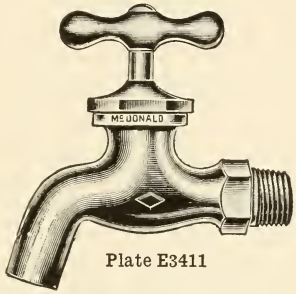


Plate E3411

IRON PIPE

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Rough ..... per dozen	16.80	17.40	22.80	30.60	54.00
" Finished ..... "	18.60	19.80	25.20	33.00	60.00
" Nickel-plated ..... "	22.20	23.40	28.80	37.20	66.00

LEAD PIPE (NOT ILLUSTRATED)

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Rough ..... per dozen	18.00	18.60	24.60	33.00	57.60
" Finished ..... "	19.80	21.00	27.00	35.40	63.60
" Nickel-plated ..... "	23.40	24.60	30.60	39.60	69.60

HOSE

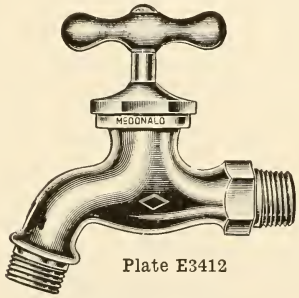


Plate E3412

IRON PIPE

Size ..... inches	1/2	5/8	3/4	1
Price, Rough ..... per dozen	20.40	25.80	33.60	61.20
" Finished ..... "	22.80	28.20	36.00	67.20
" Nickel-plated ..... per dozen	26.40	31.80	40.20	73.20

LEAD PIPE (NOT ILLUSTRATED)

Size ..... inches	1/2	5/8	3/4	1
Price, Rough ..... per dozen	21.60	27.60	36.00	64.80
" Finished ..... "	24.00	30.00	38.40	70.80
" Nickel-plated ..... "	27.60	33.60	42.60	76.80

COMPRESSION BIBBS WITH STUFFING BOX

RED METAL

The stem has a square cut, coarse thread which is very durable. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap has a special molded packing to prevent leakage around the stem.

IRON PIPE

PLAIN

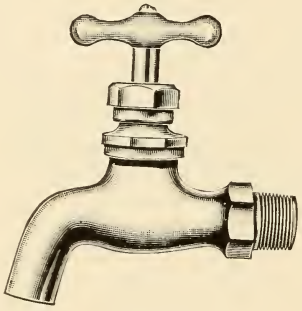


Plate E3421

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Rough ..... per dozen	21.00	22.20	28.20	36.60	64.80
" Finished ..... "	22.80	24.60	30.60	39.00	70.80
" Nickel-plated ..... "	26.40	28.20	34.20	43.20	76.80
Add for Loose Key ..... "	4.80	5.40	6.00	7.20	24.00

HOSE

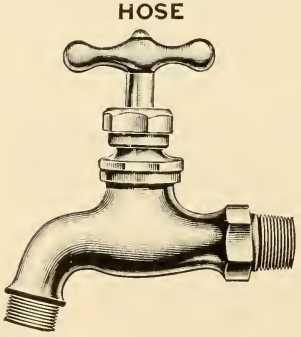


Plate E3422

Size ..... inches	1/2	5/8	3/4	1
Price, Rough ..... per dozen	25.20	31.20	39.60	72.00
" Finished ..... "	27.60	33.60	42.00	78.00
" Nickel-plated ..... "	31.20	37.20	46.20	84.00
Add for Loose Key ..... "	5.40	6.00	7.20	24.00

COMPRESSION BIBBS WITH STUFFING BOX

RED METAL

The stem has a square cut, coarse thread, which is very durable. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap has a special molded packing to prevent leakage around the stem.

PLAIN **S. O. T.** **HOSE**

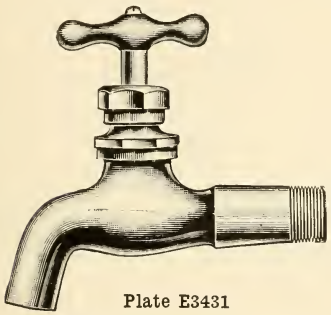


Plate E3431

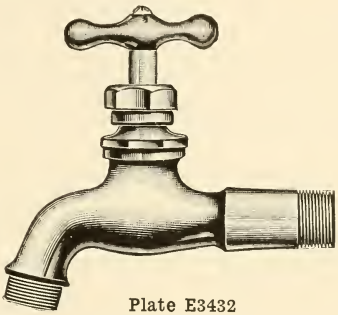


Plate E3432

PLAIN BIBBS

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Rough ..... per dozen	24.00	24.60	31.20	40.80	72.00
" Finished ..... "	25.80	27.00	33.60	43.20	78.00
" Nickel-plated ..... "	29.40	30.60	37.20	47.40	84.00

HOSE BIBBS

Price, Rough ..... per dozen	....	27.60	34.20	43.80	79.20
" Finished ..... "	....	30.00	36.60	46.20	85.20
" Nickel-plated ..... "	....	33.60	40.20	50.40	91.20
Add for Hexagon ..... "	1.80	1.80	1.80	1.80	3.00
" " Loose Key ..... "	4.80	5.40	6.00	7.20	24.00

LEAD PIPE

PLAIN **HOSE**

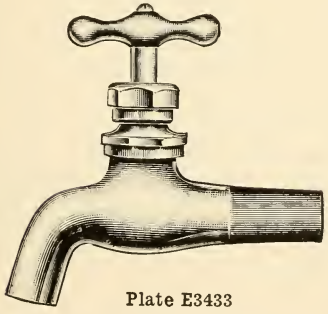


Plate E3433

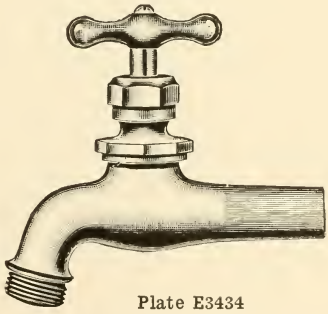


Plate E3434

PLAIN BIBBS

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Rough ..... per dozen	22.20	23.40	30.00	39.00	68.40
Size Finished ..... "	24.00	25.80	32.40	41.40	74.40
" Nickel-plated ..... "	27.60	29.40	36.00	45.60	80.40

HOSE BIBBS

Price, Rough ..... per dozen	....	26.40	33.00	42.00	75.60
" Finished ..... "	....	28.80	35.40	44.40	81.60
" Nickel-plated ..... "	....	32.40	39.00	48.60	87.60
Add for Loose Key ..... "	4.80	5.40	6.00	7.20	24.00

STANDARD COMPRESSION BIBBS

RED METAL

The stem has a square cut, coarse thread which is very durable. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap has a special molded packing to prevent leakage around the stem.

S. O. T. WITH HEXAGON

PLAIN

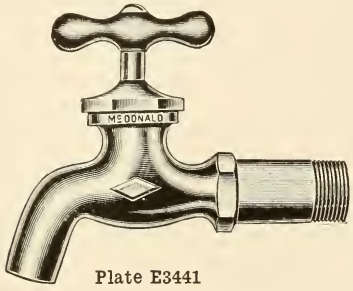


Plate E3441

HOSE

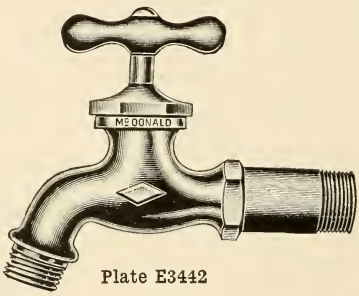


Plate E3442

PLAIN BIBBS

Size.....inches	3/8	1/2x3/8	1/2	5/8x1/2	5/8	3/4	1
Price, Rough.....per dozen	21.00	21.60	21.60	27.60	27.60	36.60	64.20
" Finished..... "	22.80	24.00	24.00	30.00	30.00	39.00	70.20
" Nickel-plated.. "	26.40	27.60	27.60	33.60	33.60	43.20	76.20

HOSE BIBBS

Price, Rough.....per dozen	.....	24.60	24.60	30.60	30.60	39.60	71.40
" Finished.....per dozen	.....	27.00	27.00	33.00	33.00	42.00	77.40
" Nickel-plated.. "	.....	30.60	30.60	36.60	36.60	46.20	83.40

S. O. T. WITHOUT HEXAGON

PLAIN

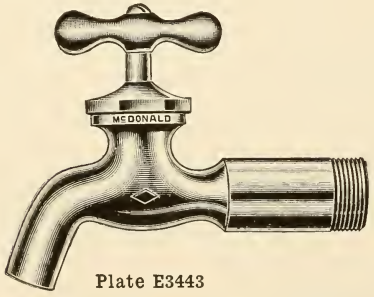


Plate E3443

HOSE

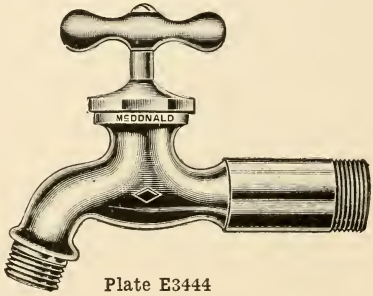


Plate E3444

PLAIN BIBBS

Size.....inches	3/8	1/2x3/8	1/2	5/8x1/2	5/8	3/4	1
Price, Rough.....per dozen	19.20	19.80	19.80	25.80	25.80	34.80	61.20
" Finished..... "	21.00	22.20	22.20	28.20	28.20	37.20	67.20
" Nickel-plated.. "	24.60	25.80	25.80	31.80	31.80	41.40	73.20

HOSE BIBBS

Price, Rough.....per dozen	.....	22.80	22.80	28.80	28.80	37.80	68.40
" Finished..... "	.....	25.20	25.20	31.20	31.20	40.20	74.40
" Nickel-plated.. "	.....	28.80	28.80	34.80	34.80	44.40	80.40

STANDARD COMPRESSION BIBBS

RED METAL

The stem has a square cut, coarse thread which is very durable. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap has a special molded packing to prevent leakage around the stem.

WITH HEXAGON AND SET SCREW FLANGE IRON PIPE

PLAIN

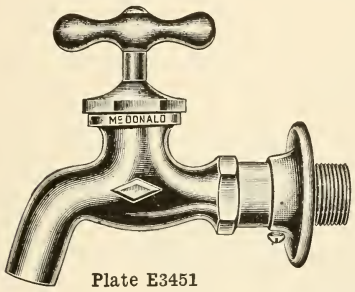


Plate E3451

HOSE

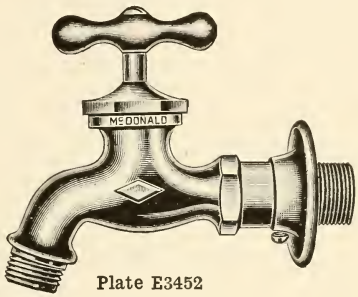


Plate E3452

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	29.40	36.00	45.60
" Nickel-plated ..... "	33.00	39.60	49.80

HOSE BIBBS

Price, Finished ..... per dozen	32.40	39.00	48.60
" Nickel-plated ..... "	36.00	42.60	52.80

SET SCREW FLANGE WITHOUT HEXAGON IRON PIPE

PLAIN

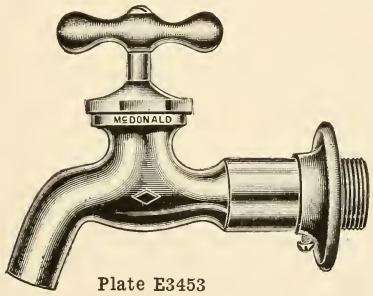


Plate E3453

HOSE

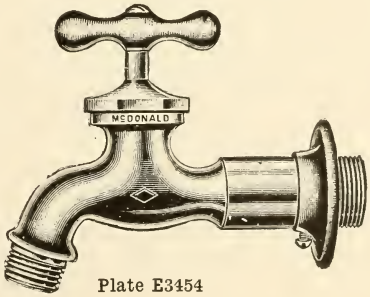


Plate E3454

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	27.60	34.20	43.80
" Nickel-plated ..... "	31.20	37.80	48.00

HOSE BIBBS

Price, Finished ..... per dozen	30.60	37.20	46.80
" Nickel-plated ..... "	34.20	40.80	51.00

ADD FOR STUFFING BOX

Size ..... inches	½	⅝	¾
Price ..... per dozen	4.80	5.40	6.00

STANDARD COMPRESSION BIBBS

RED METAL

WITH HEXAGON AND ADJUSTABLE, SCREWED SLEEVE FLANGE, IRON PIPE

The adjustable sleeve flange screws forward and backward on the thread of the bibb, and is preferable to the set screw flange, because there is no set screw to catch and tear a cleaning cloth. The sleeve of the flange covers all of the thread, giving a finished appearance equal to a solid flange.

PLAIN

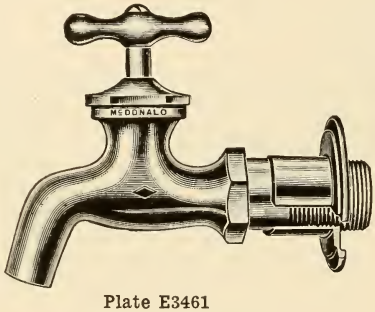


Plate E3461

Size ..... inches	½	⅝
Price, Finished ..... per dozen	32.40	40.80
" Nickel-plated ..... "	36.00	44.40
Add for Stuffing Box ..... "	4.80	5.40

HOSE

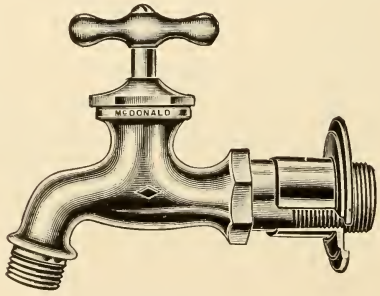


Plate E3462

Price, Finished ..... per dozen	35.40	43.80
" Nickel-plated ..... "	39.00	47.40
Add for Stuffing Box ..... "	4.80	5.40

STANDARD COMPRESSION BIBBS

RED METAL

The stem has a square cut, coarse thread which is very durable. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap has a special molded packing to prevent leakage around the stem.

SOLID FLANGE, MALE, WITH HEXAGON IRON PIPE

PLAIN

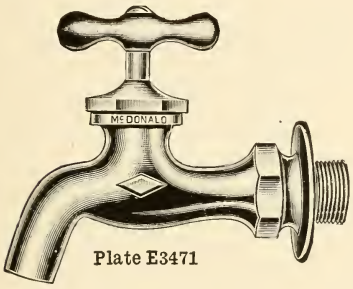


Plate E3471

HOSE

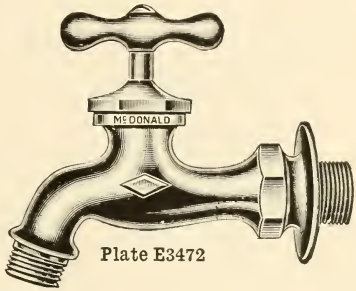


Plate E3472

PLAIN BIBBS

Size	inches	½	⅝
Price, Finished	per dozen	27.60	34.20
" Nickel-plated	"	31.20	37.80
Add for Stuffing Box	"	4.80	5.40

HOSE BIBBS

Price, Finished	per dozen	30.60	37.20
" Nickel-plated	"	34.20	40.80
Add for Stuffing Box	"	4.80	5.40

SOLID FLANGE, FEMALE, WITH HEXAGON IRON PIPE

PLAIN

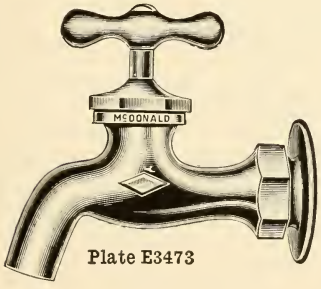


Plate E3473

HOSE

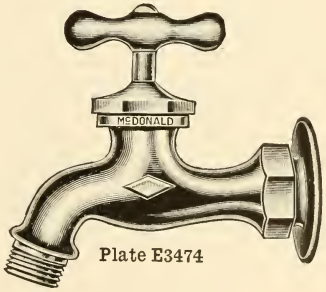


Plate E3474

PLAIN BIBBS

Size	inches	½	⅝
Price, Finished	per dozen	25.80	32.40
" Nickel-plated	"	29.40	36.00
Add for Stuffing Box	"	4.80	5.40

HOSE BIBBS

Price, Finished	per dozen	28.80	35.40
" Nickel-plated	"	32.40	39.00
Add for Stuffing Box	"	4.80	5.40

STANDARD COMPRESSION BIBBS

RED METAL

The stem has a square cut, coarse thread which is very durable. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap has a special molded packing to prevent leakage around the stem.

SOLID FLANGE AND THIMBLE, WITH HEXAGON IRON PIPE

PLAIN

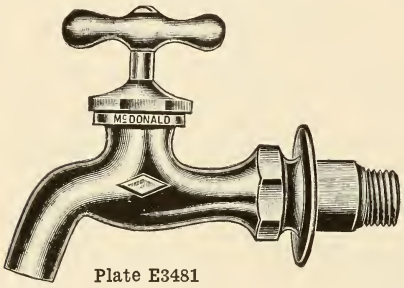


Plate E3481

HOSE

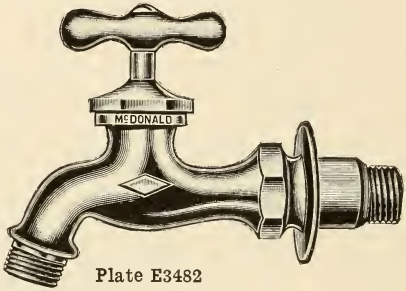


Plate E3482

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	32.40	39.60
" Nickel-plated ..... "	36.00	43.20
Add for Stuffing Box ..... "	4.80	5.40

HOSE BIBBS

Price, Finished ..... per dozen	35.40	42.60
" Nickel-plated ..... "	39.00	46.20
Add for Stuffing Box ..... "	4.80	5.40

SOLID FLANGE AND THIMBLE, WITH HEXAGON LEAD PIPE

PLAIN

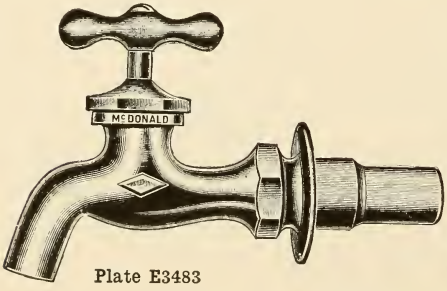


Plate E3483

HOSE

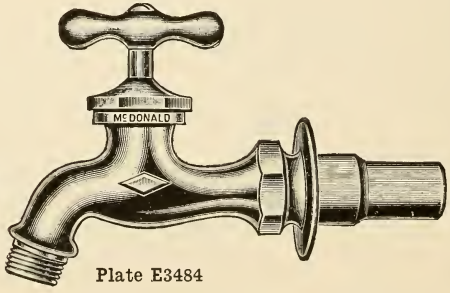


Plate E3484

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	30.60	37.80
" Nickel-plated ..... "	34.20	41.40
Add for Stuffing Box ..... "	4.80	5.40

HOSE BIBBS

Price, Finished ..... per dozen	33.60	40.80
" Nickel-plated ..... "	37.20	44.40
Add for Stuffing Box ..... "	4.80	5.40

STANDARD COMPRESSION BIBBS

LOOSE KEY RED METAL

The stem has a square cut, coarse thread which is very durable. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Cap has a special molded packing to prevent leakage around the stem.

IRON PIPE

PLAIN

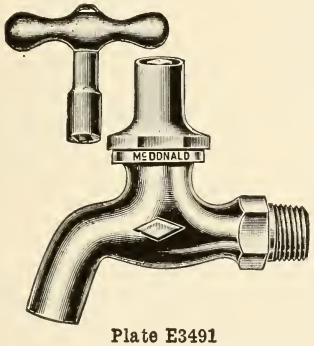


Plate E3491

HOSE

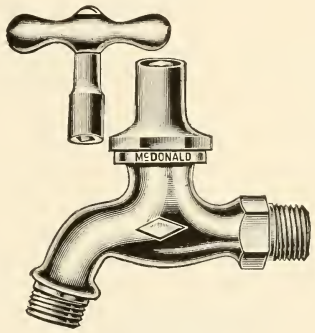


Plate E3492

PLAIN BIBBS, IRON PIPE

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Finished ..... per dozen	23.40	25.20	31.20	40.20	84.00
" Nickel-plated ..... "	27.00	28.80	34.80	44.40	90.00
Add for Stuffing Box ..... "	4.20	4.80	5.40	6.00	10.80

PLAIN BIBBS, LEAD PIPE (Not Illustrated)

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Finished ..... per dozen	24.60	26.40	33.00	42.60	87.60
" Nickel-plated ..... "	28.20	30.00	36.60	46.80	93.60
Add for Stuffing Box ..... "	4.20	4.80	5.40	6.00	10.80

HOSE BIBBS, IRON PIPE

Size ..... inches	1/2	5/8	3/4	1
Price, Finished ..... per dozen	28.20	34.20	43.20	91.20
" Nickel-plated ..... "	31.80	37.80	47.40	97.20
Add for Stuffing Box ..... "	4.80	5.40	6.00	10.80

HOSE BIBBS, LEAD PIPE (Not Illustrated)

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Finished ..... per dozen	....	29.40	36.00	45.60	94.80
" Nickel-plated ..... "	....	33.00	39.60	49.80	100.80
Add for Stuffing Box ..... "	....	4.80	5.40	6.00	10.80
For Loose Key Bibbs not Shown or Listed, add to List of Regular Bibbs ..... per dozen	4.80	5.40	6.00	7.20	24.00

One key with each loose key bibb.

STANDARD COMPRESSION WASH TRAY BIBBS

RED METAL

IRON PIPE

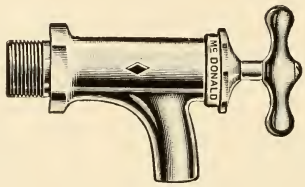


Plate E3501

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	19.80	25.20	33.00
" Nickel-plated ..... "	23.40	28.80	37.20

S. O. T. WITH HEXAGON (NOT ILLUSTRATED)

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	24.00	30.00	39.00
" Nickel-plated ..... "	27.60	33.60	43.20
" Add for Adj. Set Screw Flange ..... "	5.40	6.00	6.60

S. O. T. WITHOUT HEXAGON (NOT ILLUSTRATED)

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	22.20	28.20	37.20
" Nickel-plated ..... "	25.80	31.80	41.40
Add for Adj. Set Screw Flange ..... "	5.40	6.00	6.60

LEAD PIPE

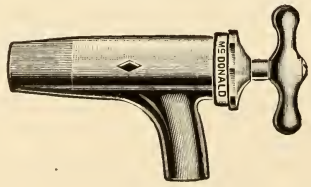


Plate E3502

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	21.00	27.00	35.40
" Nickel-plated ..... "	24.60	30.60	39.60

RED TOP COMPRESSION STOP AND WASTE AND STOP COCKS

RED METAL IRON WHEEL HANDLES

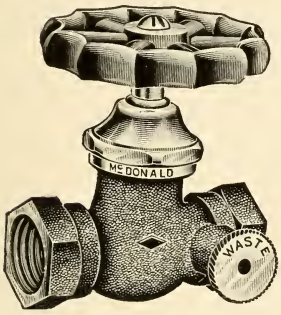


Plate E3511

SPECIAL COMPRESSION STOP AND WASTE

A special composition disc suitable for hot or cold water is countersunk in the end of the stem, insuring long service and freedom from leaks. Leakage around the stem is prevented by a special molded packing.

Waste is taken from side of body by unscrewing knurled headed screw. They are made with waste on left or right-hand side.

Size.....inches	3/8	1/2	5/8	3/4	1
Price, Rough, per dozen	**25.80**	**29.40**	**35.40**	**43.80**	**76.80**

RED TOP ADJUSTABLE STOP AND WASTE COCK

This is a strictly high-grade article. A special composition disc is inserted in stem, insuring long service and freedom from leakage. A special washer between center-piece and body makes a tight joint there, and also forms the seat which prevents leakage of water through waste when cock is wide open. Stuffing nut has a special packing and brass friction ring which will last for years.

This compression stop and waste cock is always easy to operate, gives full volume of water, and is suitable for use on either hot or cold water, hence it is particularly adapted for use in connection with sill cocks and in apartment houses. It is as easily repaired as a compression bibb.

A waste tube comes with each cock, and the swivel center-piece permits the waste to be turned in any direction.

All compression stop and waste cocks must be either fully open or tightly closed to prevent leakage through waste tube.

Fully guaranteed.

Size.....inches	1/2	5/8	3/4	1
Price, Rough...per doz.	**32.40**	**38.40**	**46.80**	**84.00**

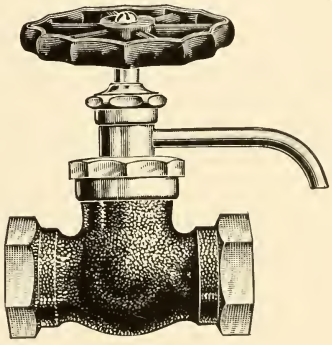


Plate E3512

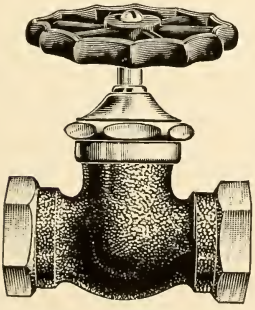


Plate E3513

RED TOP COMPRESSION STOP COCK

A special composition disc suitable for hot or cold water is countersunk in the end of the stem, insuring long service and freedom from leakage. Stem has a coarse, square cut thread, which is very durable. Leakage around the stem is prevented by a special molded packing.

Size.....inches	3/8	1/2	5/8	3/4	1
Price, Rough...per doz.	**14.40**	**17.40**	**22.80**	**30.60**	**54.00**
" Add for Stuffing Box.....per doz.	**4.20**	**4.80**	**5.40**	**6.00**	**10.80**

COMPRESSION STOP AND WASTE COCKS

BRASS HANDLE RED METAL ADJUSTABLE WASTE
WITH STUFFING BOX IRON PIPE

A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, insuring long service and freedom from leakage. A waste tube comes with each cock, and the swivel centerpiece permits the waste tube to be turned in any direction. It is always easy to operate, and is as easily repaired as a compression bibb. Stem has a coarse, square cut thread, which wears indefintely.

STOP AND WASTE COCK

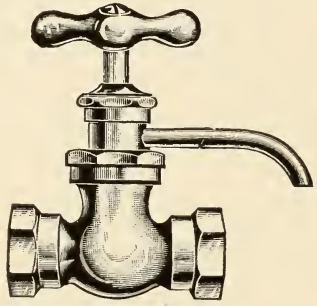


Plate E3521

Size ..... inches	½	⅝	¾	1
Price, Finished ..... per dozen	34.80	40.80	49.20	90.00
" Nickel-plated ..... "	38.40	44.40	53.40	96.00
Add for Brass Wheel Handle ..... "	5.40	6.00	7.20	24.00
" " Slip Joint, either End ..... "	4.80	9.00	10.80	.....

COMPRESSION STOP COCKS

WITH STUFFING BOX RED METAL IRON PIPE

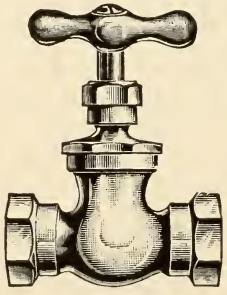


Plate E3522

Size ..... inches	⅜	½	⅝	¾	1
Price, Finished ..... per dozen	20.40	24.60	30.60	39.00	70.80
" Nickel-plated ..... "	24.00	28.20	34.20	43.20	76.80
Add for One Male End ..... "	7.80	8.40	10.20	10.80	16.80
" " Both Ends Male ..... "	11.40	12.00	15.00	15.60	22.80
" " Slip Joint, either End ..... "	3.00	4.80	9.00	10.80	.....
" " Brass Wheel Handle ..... "	4.80	5.40	6.00	7.20	24.00

Slip joint regularly sent to fit same O. D. tube as the outside diameter of the pipe screwed into the other end, unless ordered to fit smaller size O. D. tube. Slip joint can be furnished on both ends if desired.

COMPRESSION STOP COCKS

RED METAL

A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, insuring long service and freedom from leakage. Coarse, square cut thread on stem.

LEAD AND IRON PIPE WITH STUFFING BOX

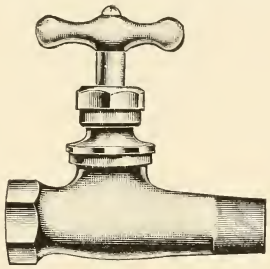


Plate E3531

Size	inches	½
Price, Rough	per dozen	23.40
" Finished	"	25.80
" Nickel-plated	"	29.40
Add for Adj. Waste	"	10.20
" " Loose Key	"	5.40

LEAD AND IRON PIPE WITHOUT STUFFING BOX—(Not Illustrated)

Size	inches	½
Price, Rough	per dozen	18.60
" Finished	"	21.00
" Nickel-plated	"	24.60

LEAD PIPE WITH STUFFING BOX

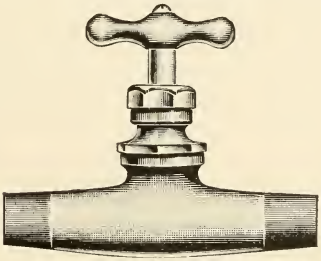


Plate E3532

Size inches	⅜	½	⅝	¾	1
Price, Rough per dozen	21.00	24.60	31.80	41.40	72.00
" Finished "	22.80	27.00	34.20	43.80	78.00
" Nickel-plated "	26.40	30.60	37.80	48.00	84.00
Add for Adj. Waste "	.....	10.20	10.20	10.20	19.20
" " Loose Key "	4.80	5.40	6.00	7.20	24.00

LEAD PIPE WITHOUT STUFFING BOX—(Not Illustrated)

Size inches	⅜	½	⅝	¾	1
Price, Rough per dozen	16.80	19.80	26.40	35.40	61.20
" Finished "	18.60	22.20	28.80	37.80	67.20
" Nickel-plated "	22.20	25.80	32.40	42.00	73.20

COMPRESSION STOP COCKS

RED METAL

A special composition disc, suitable for either hot or cold water, is countersunk in the end of the stem, to insure long service and freedom from leakage. Leakage around stem is prevented by a special molded packing in the cap. Stem has a coarse, square cut thread, which is the most durable. Slip joint regularly sent to fit same O. D. tube as the outside diameter of the pipe screwed into the other end, unless ordered to fit smaller size O. D. tube. Slip joints can be furnished on both ends, if desired.

TEE HANDLE

IRON PIPE

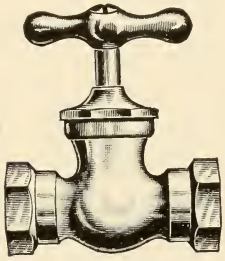


Plate E3541

WITH SLIP JOINT ONE END

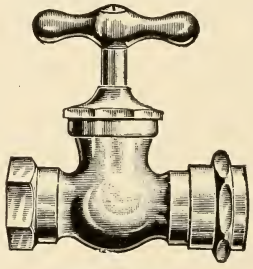
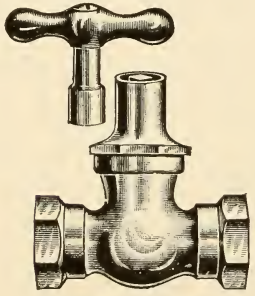


Plate E3542

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Iron Pipe, Finished ..... per dozen	16.20	19.80	25.20	33.00	60.00
" " " Nickel-plated ..... "	19.80	23.40	28.80	37.20	66.00
" Slip Joint One End, Finished ... "	19.20	24.60	34.20	43.80	.....
" " " " " N. P. ..... "	22.80	28.20	37.80	48.00	.....
Add for Stuffing Box ..... "	4.20	4.80	5.40	6.00	10.80
" " One Male End ..... "	7.80	8.40	10.20	10.80	16.80
" " Male Threads Both Ends .... "	11.40	12.00	15.00	15.60	22.80
" " Brass Wheel Handle ..... "	4.80	5.40	6.00	7.20	24.00

LOOSE KEY

IRON PIPE



One key sent with each stop.

Plate E3543

WITH SLIP JOINT ONE END

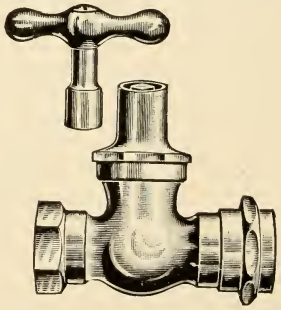


Plate E3544

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Iron Pipe, Finished ..... per dozen	21.00	25.20	31.20	40.20	84.00
" " " Nickel-plated ..... "	24.60	28.80	34.80	44.40	90.00
" Slip Joint One End, Finished ... "	24.00	30.00	40.20	51.00	.....
" " " " " N. P. ..... "	27.60	33.60	43.80	55.20	.....
Add for One Male End ..... "	7.80	8.40	10.20	10.80	16.80
" " Male Threads Both Ends .... "	11.40	12.00	15.00	15.60	22.80
" " Stuffing Box ..... "	4.20	4.80	5.40	6.00	10.80

SPECIAL DOME CAP COMPRESSION STOP COCKS

RED METAL

Strictly high-grade, full weight and size. The stem has a square cut, coarse thread which makes it wear indefinitely. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, insuring durability and preventing leakage. A special molded packing in the cap prevents leakage around the stem.

IRON PIPE

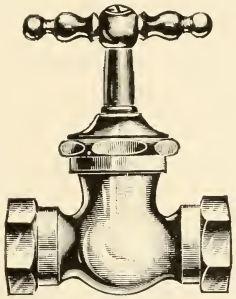


Plate E3551

Size.....inches	3/8	1/2	5/8	3/4	1
Price, Finished.....per dozen	16.20	19.80	25.20	33.00	60.00
" " ..... "	19.80	23.40	28.80	37.20	66.00
Add for One Male End.....per dozen	7.80	8.40	10.20	10.80	16.80
" " Male at Both Ends.. "	11.40	12.00	15.00	15.60	22.80

WITH SLIP JOINT, ONE END

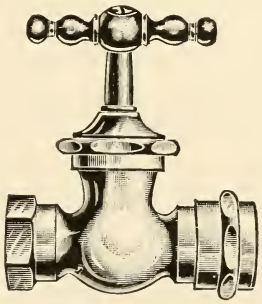


Plate E3552

Size .....inches	3/8	1/2	5/8	3/4
Price, Finished.....per dozen	19.20	24.60	34.20	43.80
" Nickel-plated..... "	22.80	28.20	37.80	48.00
Add for Male End.....per dozen	7.80	8.40	10.20	10.80
" " Slip Joint, Both Ends..... "	3.00	4.80	9.00	10.80

Slip joint regularly sent to fit same O. D. tube as the outside diameter of the pipe screwed into the other end, unless ordered to fit smaller size O. D. tube.

SPECIAL DOME CAP COMPRESSION STOP COCKS

BRASS WHEEL HANDLE

IRON PIPE

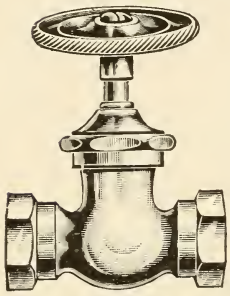


Plate E3561

Strictly high grade red metal full weight and size. The stem has a square cut, course thread, which makes it wear indefinitely. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, insuring durability and preventing leakage. A special molded packing in the cap prevents leakage around the stem.

Slip joint regularly sent to fit same O. D. tube as the outside diameter of the pipe screwed into the other end, unless ordered to fit smaller size O. D. tube. Slip joints can be furnished on both ends if desired.

WITH SLIP JOINT ONE END

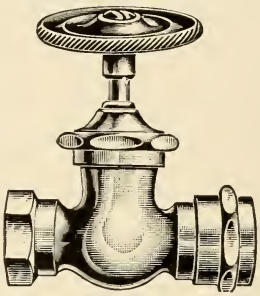


Plate E3562

IRON PIPE

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Finished ..... per dozen	21.00	25.20	31.20	40.20	84.00
" Nickel-plated ..... "	24.60	28.80	34.80	44.40	90.00

SLIP JOINT ONE END

Price, Finished ..... per dozen	24.00	30.00	40.20	51.00	.....
" Nickel-plated ..... "	27.60	33.60	43.80	55.20	.....
Add for One Male End ..... "	7.80	8.40	10.20	10.80	16.80
" " Both Ends Male..... "	11.40	12.00	15.00	15.60	22.80
" " Stuffing Box ..... "	4.20	4.80	5.40	6.00	10.80

CHINA INDEXED BRASS WHEEL HANDLE

IRON PIPE

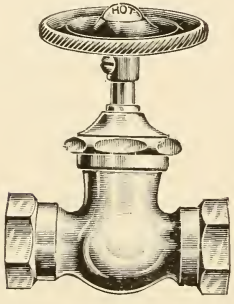


Plate E3563

WITH SLIP JOINT ONE END

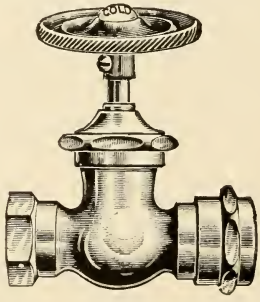


Plate E3564

IRON PIPE

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, Finished ..... per dozen	28.20	32.40	38.40	47.40	90.60
" Nickel-plated ..... "	31.80	36.00	42.00	51.60	96.60

SLIP JOINT ONE END

Price Finished..... per dozen	31.20	37.20	47.40	58.20	.....
" Nickel-plated ..... "	34.80	40.80	51.00	62.40	.....
Add for One Male End ..... "	7.80	8.40	10.20	10.80	16.80
" " Stuffing Box ..... "	4.20	4.80	5.40	6.00	10.80

Specify whether index is to be Hot or Cold.

COMPRESSION ANGLE STOP COCKS

Red metal, strictly high-grade. The stem has a square cut coarse thread, suitable for hot or cold water, is countersunk in the end of the stem, insuring durability and preventing leakage.

TEE HANDLE

PLAIN

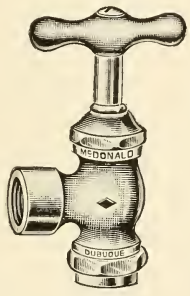


Plate E3571

WITH STUFFING BOX

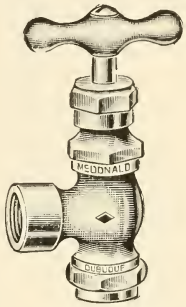


Plate E3572

PLAIN

Size.....inches	3/8	1/2
Price, Nickel-plated.....per dozen	24.60	28.80

WITH STUFFING BOX

Size.....inches	3/8	1/2
Price, Nickel-plated.....per dozen	28.80	33.60

WHEEL HANDLE

PLAIN

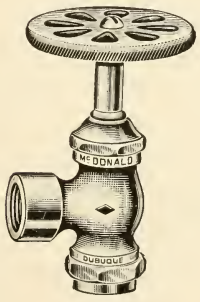


Plate E3573

WITH STUFFING BOX

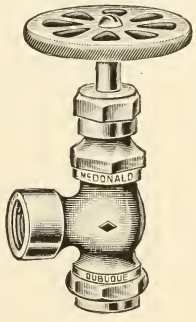


Plate E3574

PLAIN

Size.....inches	3/8	1/2
Price, Nickel-plated.....per dozen	27.00	31.80

WITH STUFFING BOX

Size.....inches	3/8	1/2
Price, Nickel-plated.....per dozen	31.20	36.60

COMPRESSION STOP COCKS

LOOSE KEY ANGLE LAVATORY STOP COCKS

PLAIN

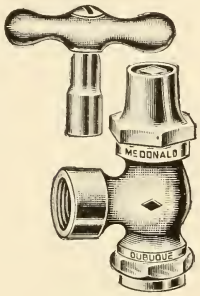


Plate E3581

WITH STUFFING BOX

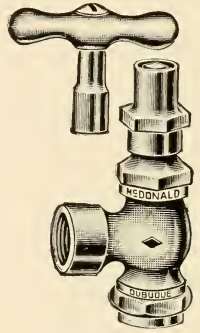


Plate E3582

Size	inches	3/8	1/2
Price, Plain, Nickel-plated	per dozen	24.60	28.80
" with Stuffing Box, Nickel-plated	"	28.80	33.60

SLIP JOINT ANGLE STOP COCKS

RED METAL NICKEL-PLATED

Fitted for 3/8 or 1/2-inch iron pipe at the bottom or inlet end. Slip joint outlet on the side is fitted with beveled rubber washer and brass friction ring for 3/8, 7/16 or 1/2-inch O. D. brass tubing. Side outlet of stop and slip joint nut are threaded for 1/2-inch iron pipe.

The stems of these stops have a special composition disc, countersunk in the end of the stem, insuring durability and preventing leakage.

These stops have a special molded packing in the cap to prevent leakage around the stem.

DOME CAP
CROSS HANDLE

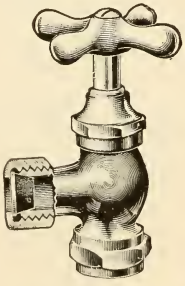


Plate E3583

SPECIAL
BALL HANDLE

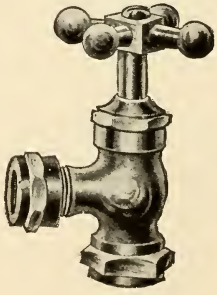


Plate E3584

Size of Body	inches	3/8	3/8
" " Pipe Thread	"	3/8	1/2
Price, Dome Cap, Cross Handle, Nickel-plated	per dozen	25.20	25.20
" Special Ball Handle, Nickel-plated	"	27.60	27.60
Add for Stuffing Box on Special Ball Handle	"	4.20	4.20

Wheel handle at the same price as cross or special ball handle.

In ordering slip joint stops, always specify the outside diameter of tubing.

COMPRESSION STOP COCKS AND DRAIN COCKS

COMPRESSION SLIP JOINT ANGLE STOP COCKS

WITH STUFFING BOX

Fitted for ⅜ or ½-inch iron pipe at the bottom or inlet end. Slip joint outlet on the side is fitted with beveled rubber washer and brass friction ring for ⅜, 7/16 or ½-inch O. D. brass tubing. Side outlet of stop and slip joint nut are threaded for ½-inch pipe.

The stems of these stops have a special composition disc, countersunk in the end of the stem, insuring durability and preventing leakage.

They are fitted with stuffing boxes so they can easily be repacked to prevent leakage around the stem.

Cross or special ball handle at the same price as wheel handle.

REGULAR PATTERN

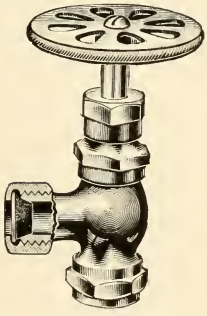


Plate E3591

WHEEL HANDLE
RED METAL

LARGE PATTERN

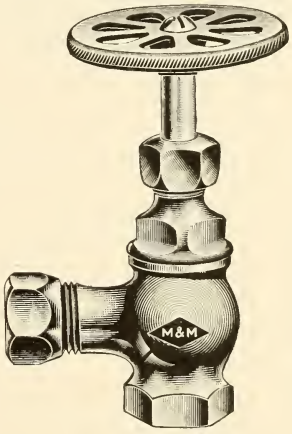


Plate E3592

REGULAR PATTERN

Size of Body.....inches	⅜	⅜
" " Pipe Thread..... "	⅜	½
Price, Nickel-plated.....per dozen	29.40	29.40

LARGE PATTERN

Size.....inches	⅜	½
Price, Nickel-plated.....per dozen	34.80	38.40

In ordering slip joint stops, always specify outside diameter of tubing.

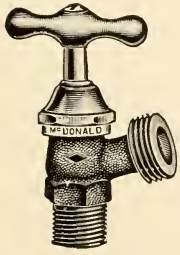


Plate E3593

ROUGH COMPRESSION BOILER DRAIN COCK

NICKEL-PLATED RED METAL

Threaded at one end for either ½ or ¾-inch iron pipe, while the outlet end is threaded to fit a ¾-inch hose coupling. Generally used for draining the water out of range boilers, but it can also be used as a Sill Cock.

Size.....inches	½	¾
Plate E3593, Rough Nickel-plated .....per dozen	17.40	22.80

COMPRESSION SILL COCKS

RED METAL

STRAIGHT PATTERN WITH STUFFING BOX

WHEEL HANDLE

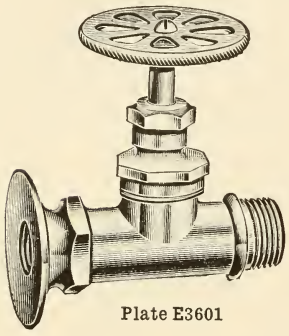


Plate E3601

LOOSE KEY

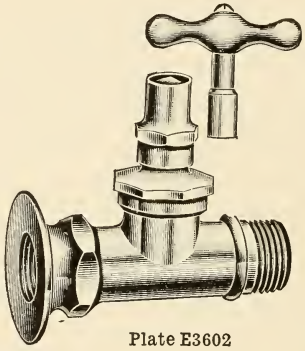


Plate E3602

WHEEL HANDLE

Size	inches	½	¾
Price, Rough, Nickel-plated	per dozen	37.80	37.80
" Finished	"	37.80	37.80
" Nickel-plated	"	42.00	42.00
Deduct if without Stuffing Box	"	6.00	6.00
" " with Tee Handle	"	4.80	4.80

LOOSE KEY

Size	inches	½	¾
Price, Rough, Nickel-plated	per dozen	37.80	37.80
" Finished	"	37.80	37.80
" Nickel-plated	"	42.00	42.00

ANGLE PATTERN WITH STUFFING BOX

WHEEL HANDLE

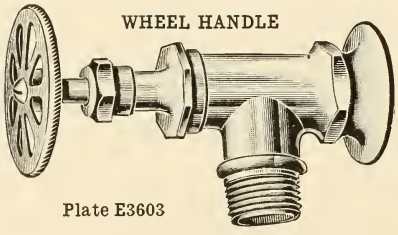


Plate E3603

LOOSE KEY

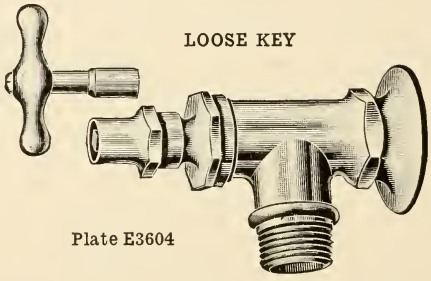


Plate E3604

WHEEL HANDLE

Size	inches	½	¾
Price, Rough, Nickel-plated	per dozen	37.80	37.80
" Finished	"	37.80	37.80
" Nickel-plated	"	42.00	42.00
Deduct if without Stuffing Box	"	6.00	6.00
" " with Tee Handle	"	4.80	4.80

LOOSE KEY

Size	inches	½	¾
Price, Rough, Nickel-plated	per dozen	37.80	37.80
" Finished	"	37.80	37.80
" Nickel-plated	"	42.00	42.00

DIAMOND COMPRESSION SILL COCKS

LARGE BODY RED METAL HIGH-GRADE

Diamond sill cocks are strictly high-grade, being large and heavy, and made of a fine quality of red brass. A high grade composition disc is countersunk in the end of the stem, insuring durability and freedom from leakage. Design is attractive. Our best and best selling sill cock.

DOME CAP

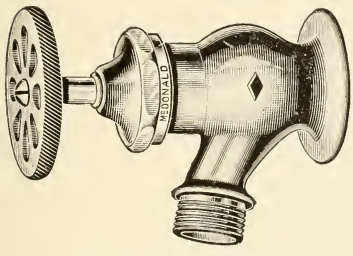


Plate E3611

WITH STUFFING BOX

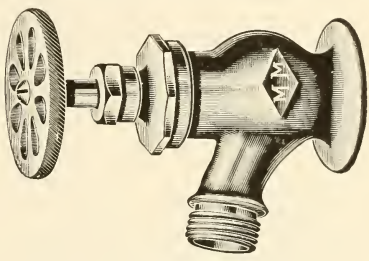


Plate E3612

DOME CAP

Size	inches	½	¾
Price, Rough Nickel-plated	per dozen	39.60	39.60
" Finished	"	39.60	39.60
" Nickel-plated	"	43.80	43.80

WITH STUFFING BOX

Size	inches	½	¾
Price, Rough Nickel-plated	per dozen	42.60	42.60
" Finished	"	42.60	42.60
" Nickel-plated	"	46.80	46.80

LOOSE KEY

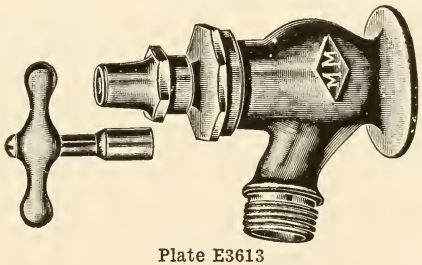


Plate E3613

Size	inches	½	¾
Price, Rough Nickel-plated	per dozen	42.60	42.60
" Finished	"	42.60	42.60
" Nickel-plated	"	46.80	46.80

COMPRESSION BASIN COCKS

RED METAL, No. 0

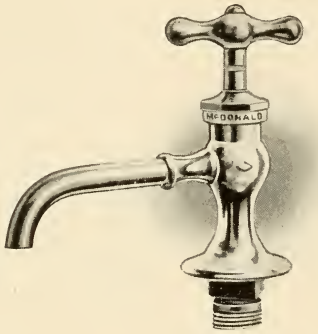


Plate E3621

Price, Nickel-plated ..... per dozen **24.60**
Add for Cross Handles ..... per dozen **3.00**

RED METAL OVAL SPOUT
CHINA INDEXED, FOUR BALL HANDLE

The stems of these basin cocks have a square cut, coarse thread, which wears indefinitely. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, insuring long service and freedom from leakage.

Shanks are regularly furnished 2½ inches long and have a ½-inch iron pipe running thread. Tail pieces are always threaded for ¼-inch iron pipe. Diameter of bases is 2 inches. Center of body to center of spout outlet measures 3⅛ inches.

Leakage around the stem of dome cap basin cocks is prevented by a special molded packing.

DOME CAP

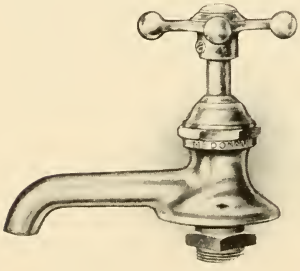


Plate E3622

WITH STUFFING BOX

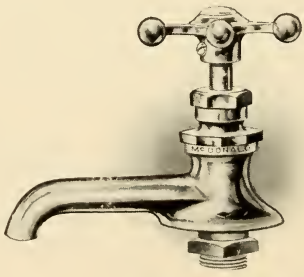


Plate E3623

DOME CAP

Price, with 2½-inch Shank, Nickel-plated ..... per dozen **30.00**
" " 3 " " " ..... " **32.40**

WITH STUFFING BOX

Price, with 2½-inch Shank, Nickel-plated ..... per dozen **32.40**
" " 3 " " " ..... " **34.80**
Add for China Cross Handles ..... per dozen **6.00**

COMPRESSION BASIN COCKS

DOME CAP RED METAL OVAL SPOUT

The stems of these basin cocks have a square cut, coarse thread, which wears indefinitely. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, insuring long service and freedom from leakage.

Shanks are regularly furnished 2½ inches long and have a ½-inch iron pipe running thread. Tail pieces are always threaded for ¼-inch iron pipe. Diameter of bases is 2 inches. Center of body to center of spout outlet measures 3⅝ inches.

Leakage around the stem of dome cap basin cocks is prevented by a special molded packing.

TEE HANDLE

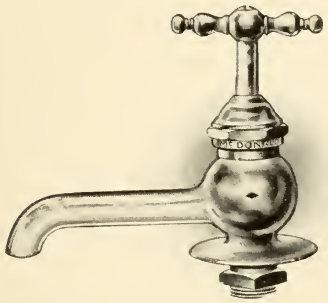


Plate E3631

CROSS HANDLE

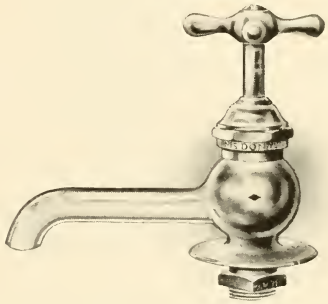


Plate E3632

TEE HANDLE

Price, Nickel-plated, with 2½-inch Shank	per dozen	28.80
" " " 3 " "	"	31.20

CROSS HANDLE

Price, Nickel-plated, with 2½-inch Shank	per dozen	31.80
" " " 3 " "	"	34.20

CHINA INDEXED FOUR-BALL HANDLE

DOME CAP

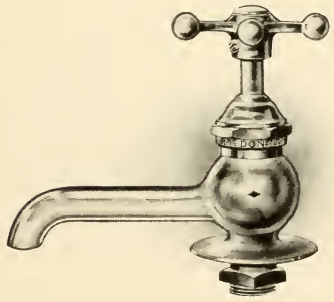


Plate E3633

WITH STUFFING BOX

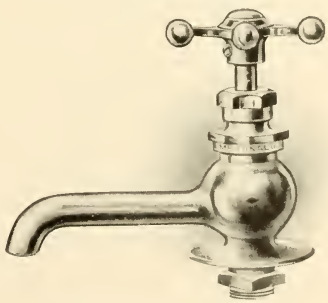


Plate E3634

DOME CAP

Price, Nickel-plated, with 2½-inch Shank	per dozen	37.80
" " " 3 " "	"	40.20

WITH STUFFING BOX

Price, Nickel-plated, with 2½-inch Shank	per dozen	42.00
" " " 3 " "	"	44.40

COMPRESSION BASIN COCKS

DOME CAP RED METAL OVAL SPOUT

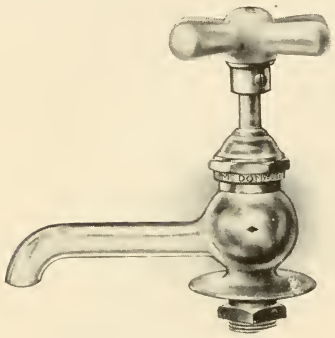


Plate E3641

The stems of these basin cocks have a square cut coarse thread, which wears indefinitely. A special composition disc, suitable for hot or cold water, is countersunk in the end of the stem, insuring long service and freedom from leakage.

Shanks are regularly furnished 2½ inches long and have a ½-inch iron pipe running thread. Tail pieces are always threaded for ¼-inch iron pipe.

Leakage around the stem of dome cap basin cocks is prevented by a special molded packing.

CHINA CROSS HANDLE, INDEXED

Handles are solid china, indexed hot or cold, and make a very attractive fixture. Center of body to center of spout outlet measures 3⅝ inches.

Price, with 2½-inch Shank, Nickel-plated.....per dozen **43.80**
Price, with 3-inch Shank, Nickel-plated.....per dozen **46.20**

QUARTER TURN COMPRESSION BASIN COCKS

RED METAL DOME CAP OVAL SPOUT QUICK OPENING

The stems of these quarter turn quick opening compression basin cocks have a square cut, coarse thread, which wears indefinitely. A special composition disc, suitable for hot or cold water, is countersunk in the stem, insuring long service and freedom from leakage. A special molded packing prevents leakage around the stem.

Shanks are regularly furnished 2½ inches long and have a ½-inch iron pipe running thread. Tail pieces are always threaded for ¼-inch iron pipe. Diameter of bases is 2 inches.

China handles are furnished plain, or indexed hot, cold or city, as desired. Specify when ordering.

LOW PATTERN

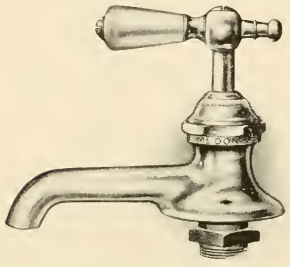


Plate E3642

REGULAR PATTERN

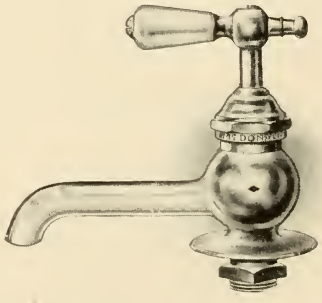


Plate E3643

LOW PATTERN

Price, with 2½-inch Shank, Nickel-plated.....per dozen **37.20**
" " 3 " " " ..... " **39.60**
Deduct if with Brass Handle..... " **6.00**

REGULAR PATTERN

Price, with 2½-inch Shank, Nickel-plated.....per dozen **45.00**
" " 3 " " " ..... " **47.40**
Deduct if with Brass Handle..... " **6.00**

Center of body to center of spout outlet; low pattern 3⅛ inches, regular pattern 3⅝ inches.

DIAMOND COMPRESSION BASIN COCKS

EXTRA LARGE PATTERN

DOME CAP RED METAL OVAL SPOUT

INDEXED CHINA HANDLES

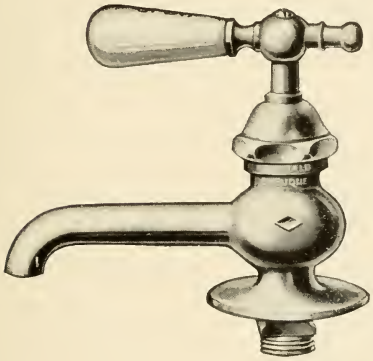


Plate E3651

Diamond Compression Basin Cocks are much larger and heavier than any of our other patterns. Attractive in appearance and superior in quality, their ample size makes them appropriate for use on high-grade lavatories.

The stems of these basin cocks have a square cut, coarse thread, which wears indefinitely. A special composition disc, suitable for hot or cold water is countersunk in the end of the stem, insuring long service and freedom from leakage. A special molded packing prevents leakage around the stem.

Shanks are regularly furnished 2½ inches long, and have a ½-inch iron pipe running thread. Tail pieces are always threaded for ¼-inch iron pipe. Diameter of base is 2¼ inches. Center of body to center of spout outlet measures 4 inches.

QUARTER TURN QUICK OPENING

China handles for Diamond Quarter Turn Compression Basin Cocks are large size, and are furnished plain or indexed hot, cold or city as desired. Specify when ordering.

Price, with 2½-inch Shank, Nickel-plated.....per dozen 54.00
" " 3 " " " " ..... " 56.40

FIVE-BALL HANDLE CHINA INDEX

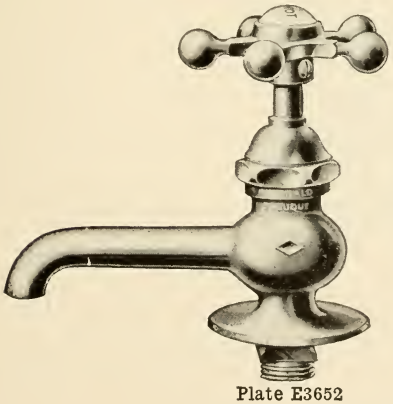


Plate E3652

SOLID CHINA INDEXED HANDLE

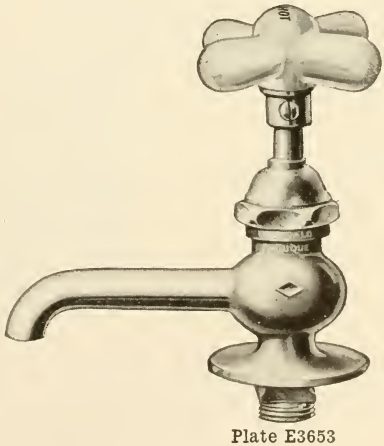


Plate E3653

FIVE-BALL HANDLE, CHINA INDEX

Price, with 2½-inch Shank, Nickel-plated.....per dozen 61.20
" " 3 " " " " ..... " 63.60

SOLID CHINA INDEXED HANDLE

Price, with 2½-inch Shank, Nickel-plated.....per dozen 57.00
" " 3 " " " " ..... " 59.40

COMPRESSION DOUBLE BATH COCKS

DOME CAP RED METAL NICKEL-PLATED

These are high-grade Bath Cocks, made of the best Red Brass. Dome Cap holds a special composition packing to prevent leakage around the stem. Best quality composition disc is countersunk in the end of the stem, to insure durability.

Flanged Spuds and Union Nuts have ¾-inch I. P. thread. Tail Pieces are either plain for ½-inch Lead Pipe or threaded for ½-inch I. P. Spuds are 3⅜ inches, center to center. Diameter of Flange, 2⅛ inches. Face of Flange to end of Spud, 1¾ inches. Regularly sent with Lock Nuts, but without Couplings.

NICKEL-PLATED CROSS HANDLES

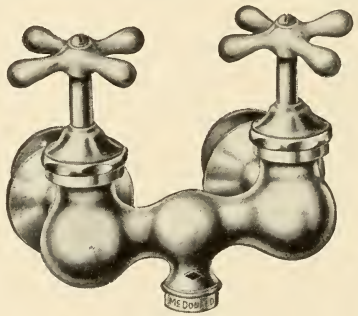


Plate E3661

Price, Nickel-plated, Without Couplings, with Lock Nuts.....each **5.80**

CHINA INDEXED, FOUR-BALL HANDLES

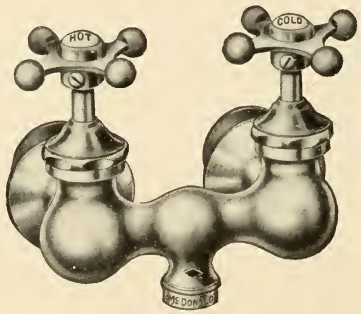


Plate E3662

Price, Nickel-plated, Without Couplings, with Lock Nuts.....each **6.80**

EXTRAS

Rgh. Couplings for Lead Pipe, per set	.80	Rgh. Coup. for I. P., Female, per set	1.65
" " " I. P., Male, "	.95	Fin. " " " " "	2.25
Fin. " " " " "	1.40	" Ball Offset Couplings, "	2.25

Union nut and hose ferrule for connection to rubber tube for shower can be furnished at additional cost.

COMPRESSION DOUBLE BATH COCKS

DOME CAP RED METAL NICKEL-PLATED

These are high-grade bath cocks, made of the best red brass. Dome cap holds a special composition packing to prevent leakage around the stem. Best quality composition disc is countersunk in the end of the stem to insure durability.

Spuds and union nut have ¾-inch I. P. thread. Tail pieces are either for ½-inch lead pipe or threaded for ½-inch I. P. Spuds are 3⅜ inches, center to center. Diameter of flange, 2⅛ inches. Face of flange to end of spud, 1¾ inches. Regularly sent with lock nuts, but without couplings.

SOLID CHINA CROSS HANDLES, INDEXED

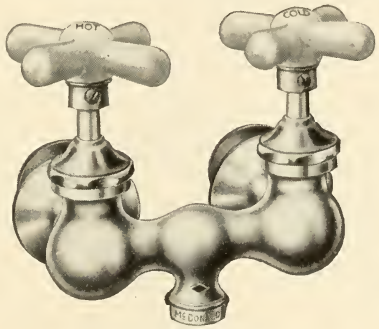


Plate E3671

Price, Nickel-plated, without Couplings, with Lock Nuts.....each **7.80**

QUARTER TURN QUICK OPENING

INDEXED CHINA HANDLES

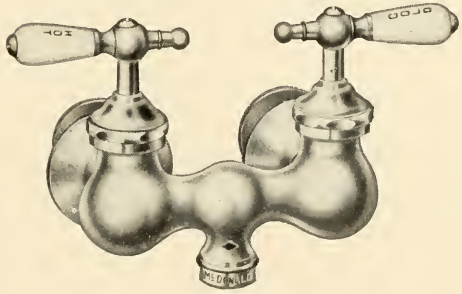


Plate E3672

Price, Nickel-plated, without Couplings, with Lock Nuts.....each **7.50**

EXTRAS

Rough Couplings for Lead Pipe	per set	.80
" " " Iron Pipe, Male	"	.95
Finished Couplings for Iron Pipe, Male	"	1.40
Rough Couplings for Iron Pipe, Female	"	1.65
Finished Couplings for Iron Pipe, Female	"	2.25
" Ball Offset Couplings	"	2.25
Deduct if with Brass Lever Handles	each cock	1.00

Union nut and hose ferrule for connection to rubber tube for shower can be furnished at additional cost.

FUL-PRESSION DOUBLE BATH COCKS

DOME CAP RED METAL NICKEL-PLATED

These are strictly high-grade, made of the best red brass. They are Compression Bath Cocks built along the lines of a Fuller Bath Cock, pleasing in appearance and satisfactory in service. Dome Caps hold a special composition packing to prevent leakage around the stem. Best quality Composition Disc is countersunk in the end of the stem to insure durability.

Flanged Spuds and Union Nuts have ¾-inch I. P. thread. Tail Pieces are either plain for ½-inch Lead Pipe or threaded for ½-inch I. P. Spuds are 3⅜ inches, center to center. Diameter of Flange, 2 1/16 inches. Face of Flange to end of Spud, 1½ inches. Regularly sent with Lock Nut, but without Couplings.

WHEEL HANDLES

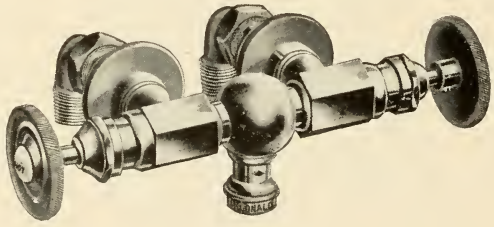


Plate E3681

Price, Nickel-plated, Without Couplings, with Lock Nuts.....each **9.50**

QUARTER TURN QUICK OPENING

INDEXED CHINA HANDLES

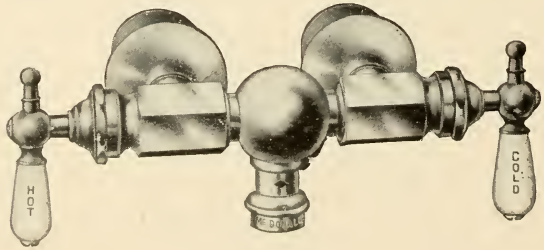


Plate E3682

Price, Nickel-plated, Without Couplings, with Lock Nuts.....each **9.50**

EXTRAS

Rgh Couplings for Lead Pipe, per set	.80	Rgh Coup. for I. P. Female, per set	1.65
" " " I. P. Male "	.95	Fin. " " I. P. " "	2.25
Fin. " " I. P. " "	1.40	" Ball Offset Couplings, "	2.25

Union nut and hose ferrule for connection to rubber tube for shower can be furnished at additional cost.

COMPRESSION WORK HANDLES

TEE

Plate E3691

BRASS WHEEL

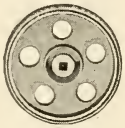


Plate E3692

BRASS WHEEL
WITH CHINA BUTTON

Plate E3693

Size .....inches	¼	⅜	½	⅝	¾	1
Price, Tee, Handles, Finished or N. P. . .per doz.	2.40	2.40	2.40	3.00	3.00	6.00
" Brass Wheels, Light, Finished One Side. "	4.80	4.80	5.40	6.60	7.80	27.00
" " " Heavy, " Two Sides. "	6.60	7.20	7.80	9.00	10.20	30.00
" Brass Wheels, with China Button, Fin. or N. P.. "	13.80	14.40	15.00	16.20	17.40	36.60

CROSS

Plate E3694

CHINA BUTTON
FOUR-ARM

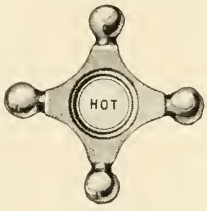


Plate E3695

CHINA BUTTON
FIVE OR SIX-ARM

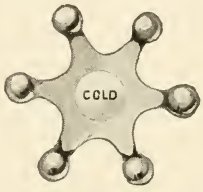


Plate E3696

Price, Cross, Handles Finished or Nickel-plated.....per dozen		5.40
" China Button, Four-arm, Small Pattern	"	11.40
" " Button, Four-arm, Finished or Nickel-plated, Large Pattern . .	"	15.00
" " " Five or Six-arm, Finished or Nickel-plated.....	"	25.20

ALL CHINA
FOUR-ARM

Plate E3697

CHINA TIP
FOUR-ARM

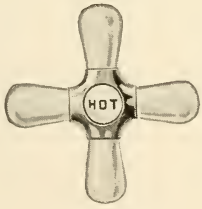


Plate E3698

Price, All China, Four-arm, Small.....per dozen		17.40
" " " " " Large	"	21.00
" China Tip. " " Finished or Nickel-plated.....	"	29.40

COMPRESSION BASIN, SHAMPOO AND PANTRY COCKS

COMPRESSION DOUBLE BASIN COCK

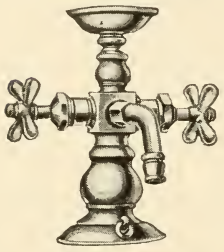


Plate E3701

COMPRESSION SHAMPOO COCK

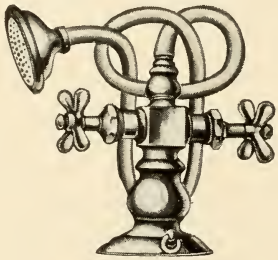


Plate E3702

COMPRESSION SHAMPOO AND BASIN COCK

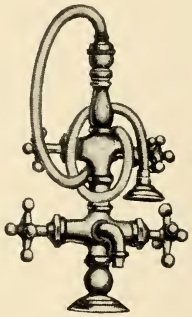


Plate E3703

COMPRESSION BASIN AND SHAMPOO COCKS

Price, Double Basin Cocks, Nickel-plated	each	13.75
Add for Stuffing Boxes	each cock	.70
" " Oval Cup	" "	1.00
" " Four-Ball China Index Handles	" "	1.60
Price, Shampoo Cocks	each	13.25
Add for Stuffing Boxes	each cock	.70
" " Four-Ball China Index Handles	" "	1.60
Price, Shampoo and Basin Cocks	each	30.00
Add for Stuffing Boxes	each cock	1.40
" " Four-Ball China Index Handles	" "	3.20

Rubber tubing extra.

COMPRESSION PANTRY COCKS

SINGLE

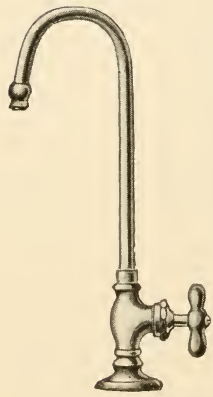


Plate E3704

SINGLE

Number	1	2
Price, "T" Handle, Nickel-plated per dozen	45.00	54.00
" Cross Handle, Nickel-plated per dozen	48.00	57.00
" Four-Ball China Index Handle per dozen	57.60	66.60
Add for Hose End "	3.60	3.60
" " Stuffing Box "	4.20	4.80

DOUBLE

Price, Nickel-plated	each	12.50
Add for Four-Ball China Index Handle	each cock	1.60
" for Hose End	" "	.30
" " Stuffing Boxes	" "	.70

DOUBLE

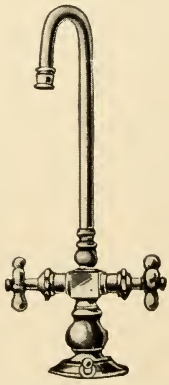


Plate E3705

BASIN AND SHAMPOO COCKS

FULLER, WITH QUICK COMPRESSION BASE

SINGLE BASIN

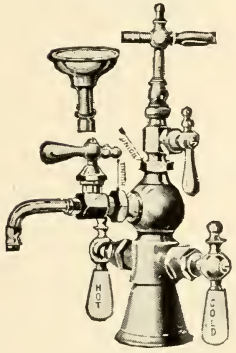


Plate E3711

DOUBLE BASIN

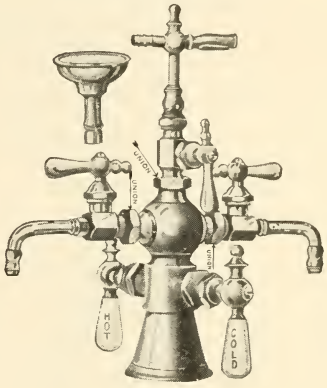


Plate E3712

Price, Single, Nickel-plated	each	32.60
" Double, " "	"	37.60

FULLER DOUBLE BRACKET SHAMPOO COCK

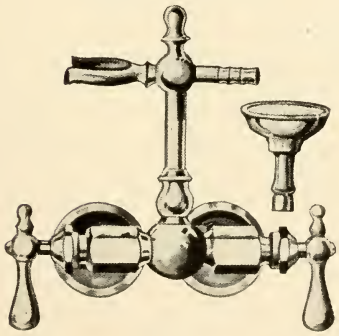


Plate E3713

COMPRESSION DOUBLE BASIN AND SHAMPOO COCK

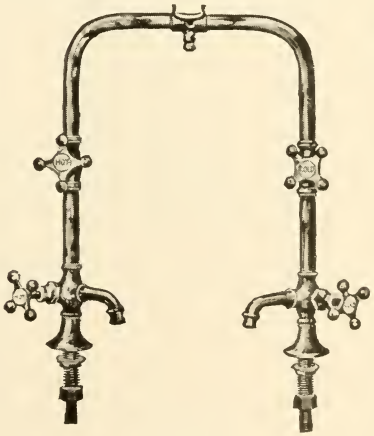


Plate E3714

Price, Fuller Double Bracket Shampoo Cocks, Nickel-plated	each	14.50
Add for China Handles	"	1.50
Price, Compression Double Basin and Shampoo Cocks, Nickel-plated	"	30.20

QUATURN QUICK ACTION WORK

COMBINATION FAUCET

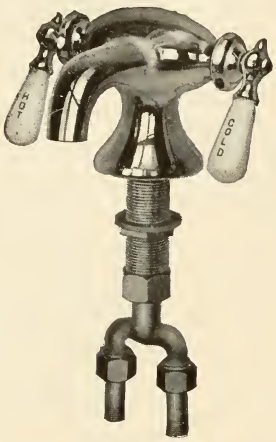


Plate E3721

Price, Nickel-plated Combination Faucet with China Handles 10.65

" Nickel-plated Combination Faucet and Pop-Up Waste with China Handles and China Knob 23.05

COMBINATION FAUCET AND POP-UP WASTE

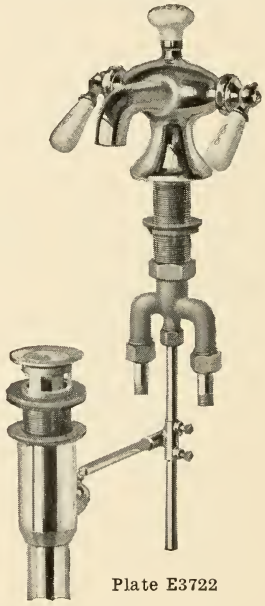


Plate E3722

ADJUSTABLE SINK FAUCETS

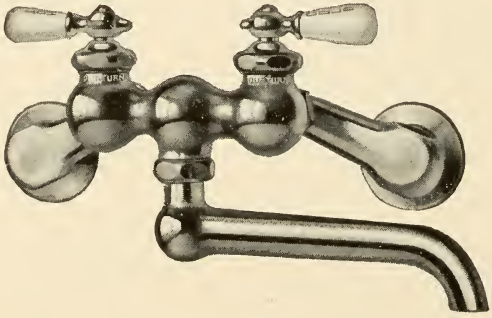


Plate E3723

Made in three sizes. The distance between inlets is adjustable as follows: No. 1 4 to 8⅜ inches; No. 2 to 10⅜ inches; No. 3 to 12⅜ inches. Extends into sink 3⅜ inches. The spout has a radius of 6 inches and can be pushed back out of the way, but not so as to strike against back of sink. Furnished in male or female, ½ or ¾-inch iron pipe.

Price, No. 1, Nickel-plated, with China Handles .....each 9.80
" " 2, " " " " ..... " 10.30
" " 3, " " " " ..... " 11.15

IMPROVED FULLER BIBBS

Our Fuller bibbs are well made and carefully tested. There are four guides on the stem to insure quiet operation and to draw the ball straight to the seat, making the ball last much longer. Fuller balls are a high quality composition, suitable for hot or cold water. A special composition packing is used in the stuffing box to prevent leakage there.

IRON PIPE

PLAIN

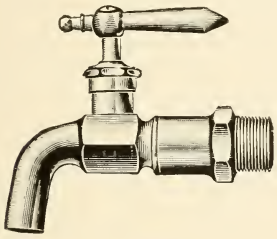


Plate E3731

HOSE

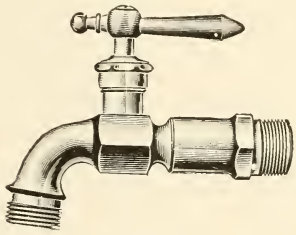


Plate E3732

PLAIN BIBBS

Size ..... inches	½	⅝	¾	1
Price, Finished ..... per dozen	23.40	27.60	38.40	72.00
" Nickel-plated ..... "	28.20	32.40	45.60	81.00

HOSE BIBBS

Price, Finished ..... per dozen	27.00	31.20	42.00	80.40
" Nickel-plated ..... "	31.80	36.00	49.20	89.40

S. O. T. WITH HEXAGON

PLAIN

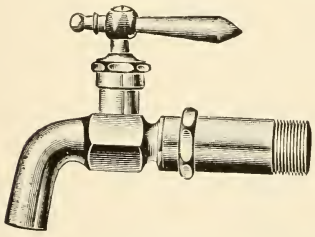


Plate E3733

HOSE

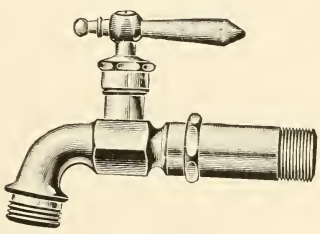


Plate E3734

PLAIN BIBBS

Size ..... inches	½	⅝	¾	1
Price, Finished ..... per dozen	28.20	33.00	46.20	84.60
" Nickel-plated ..... "	33.00	37.80	53.40	93.60

HOSE BIBBS

Price, Finished ..... per dozen	31.80	36.60	49.80	93.00
" Nickel-plated ..... "	36.60	41.40	57.00	102.00

Plates E3733 and E3734 can be furnished with tail piece or shank tapered from pipe thread to hexagon instead of straight as shown, to meet the requirements of western trade. Price is the same.

IMPROVED FULLER BIBBS

ADJUSTABLE SCREWED SLEEVE FLANGE

WITH HEXAGON IRON PIPE

Our Fuller bibbs are well made and carefully tested. There are four guides on the stem to insure quiet operation and to draw the ball straight to the seat, making the ball last much longer. Fuller balls are a high quality composition, suitable for hot or cold water. A special composition packing is used in the stuffing box to prevent leakage there.

PLAIN

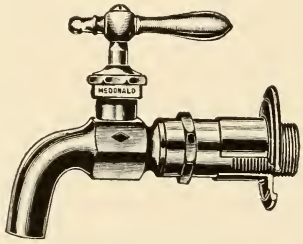


Plate E3741

Size ..... inches	½	⅝
Price, Finished ..... per dozen	36.60	43.80
" Nickel-plated ..... "	41.40	48.60
Add for China Handles ..... "	9.00	9.00

HOSE

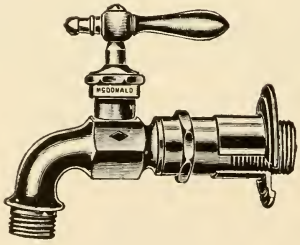


Plate E3742

Size ..... inches	½	⅝
Price, Finished ..... per dozen	40.20	47.40
" Nickel-plated ..... "	45.00	52.20
Add for China Handles ..... "	9.00	9.00

China handles can be furnished plain, or indexed hot, cold or city, as ordered.

IMPROVED FULLER BIBBS

ADJUSTABLE FLANGE IRON PIPE

Our Fuller Bibbs are well made and carefully tested. There are four guides on the stem to insure quiet operation and to draw the ball straight to the seat, making the ball last much longer. Fuller Balls are a high quality composition, suitable for hot or cold water. A special composition packing is used in the stuffing box to prevent leakage there.

ADJUSTABLE THREADED FLANGE, WITH HEXAGON

PLAIN

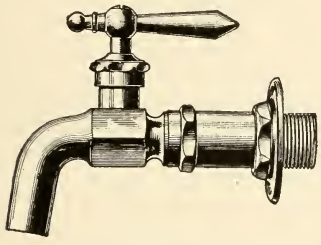


Plate E3751

HOSE

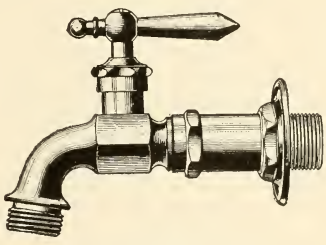


Plate E3752

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	32.40	38.40
" Nickel-plated ..... "	37.20	43.20

HOSE BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	36.00	42.00
" Nickel-plated ..... "	40.80	46.80
Add for China Handles ..... "	9.00	9.00

ADJUSTABLE SET SCREW FLANGE, WITH HEXAGON

PLAIN

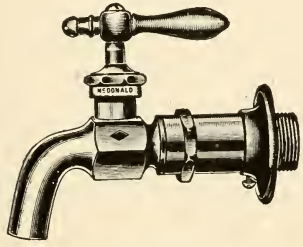


Plate E3753

HOSE

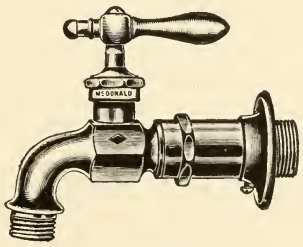


Plate E3754

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	33.60	39.00	52.80
" Nickel-plated ..... "	38.40	43.80	60.00

HOSE BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	37.20	42.60	56.40
" Nickel-plated ..... "	42.00	47.40	63.60
Add for China Handles ..... "	9.00	9.00	9.00

China handles can be furnished plain, or indexed hot, cold or city, as ordered.

IMPROVED FULLER BIBBS

Our Fuller bibbs are well made and carefully tested. There are four guides on the stem to insure quiet operation and to draw the ball straight to the seat, making the ball last much longer. Fuller balls are a high quality composition, suitable for hot or cold water. A special composition packing is used in the stuffing box to prevent leakage there.

SOLID FLANGE, MALE, WITH HEXAGON

PLAIN

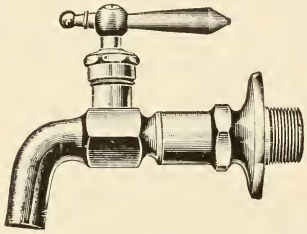


Plate E3761

HOSE

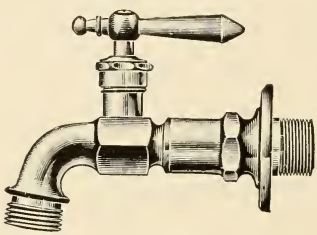


Plate E3762

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	31.20	36.60	49.20
" Nickel-plated ..... "	36.00	41.40	56.40

HOSE BIBBS

Price, Finished ..... per dozen	34.80	40.20	52.80
" Nickel-plated ..... "	39.60	45.00	60.00
Add for China Handles ..... "	9.00	9.00	9.00

SOLID FLANGE, FEMALE, WITH HEXAGON

PLAIN

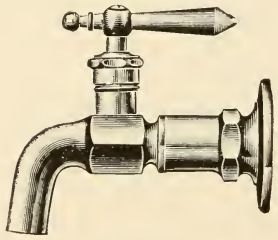


Plate E3763

HOSE

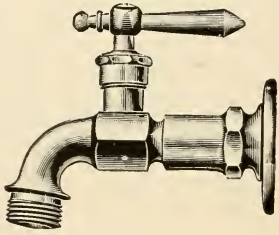


Plate E3764

PLAIN BIBBS

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	29.40	34.80	47.40
" Nickel-plated ..... "	34.20	39.60	54.60

HOSE BIBBS

Price, Finished ..... per dozen	33.00	38.40	51.00
" Nickel-plated ..... "	37.80	43.20	58.20
Add for China Handles ..... "	9.00	9.00	9.00

China handles can be furnished plain, or indexed hot, cold or city, as ordered.

IMPROVED FULLER BIBBS

LEAD PIPE

Our Fuller bibbs are well made and carefully tested. There are four guides on the stem to insure quiet operation and to draw the ball straight to the seat, making the ball last much longer. Fuller balls are a high quality composition, suitable for hot or cold water. A special composition packing is used in the stuffing box to prevent leakage there.

PLAIN

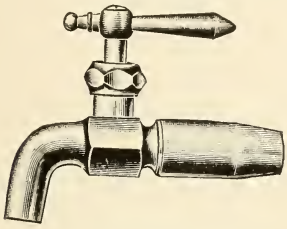


Plate E3771

HOSE

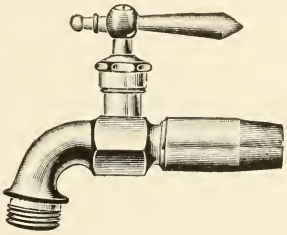


Plate E3772

PLAIN BIBBS

Size ..... inches	½	⅝	¾	1
Price, Finished ..... per dozen	24.60	29.40	40.80	75.60
" Nickel-plated ..... "	29.40	34.20	48.00	84.60

HOSE BIBBS

Price, Finished ..... per dozen	28.20	33.00	44.40	84.00
" Nickel-plated ..... "	33.00	37.80	51.60	93.00

ADJUSTABLE THREADED FLANGE

PLAIN

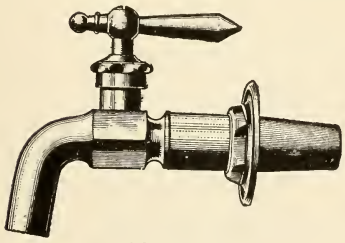


Plate E3773

HOSE

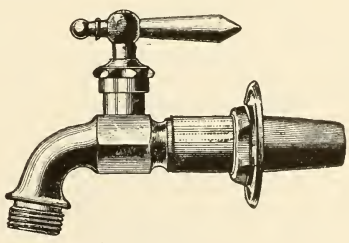


Plate E3774

PLAIN BIBBS

Size ..... inches	½	⅝
Price, Finished ..... per dozen	31.80	38.40
" Nickel-plated ..... "	36.60	43.20

HOSE BIBBS

Price, Finished ..... per dozen	35.40	42.00
" Nickel-plated ..... "	40.20	46.80

IMPROVED FULLER WASH TRAY BIBBS

IRON PIPE

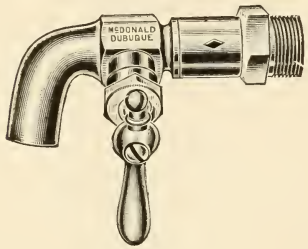


Plate E3781

LEAD PIPE

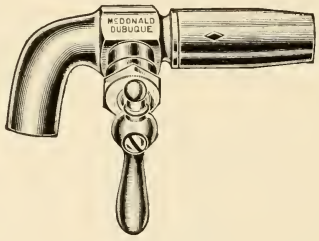


Plate E3782

IRON PIPE

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	25.80	31.20	43.20
" Nickel-plated ..... "	30.60	36.00	50.40
" Add for S. O. T. Iron Pipe ..... "	3.00	3.60	6.00

LEAD PIPE

Price, Finished ..... per dozen	27.00	33.00	45.60
" Nickel-plated ..... "	31.80	37.80	52.80

SOLID FLANGE, WITH HEXAGON

MALE

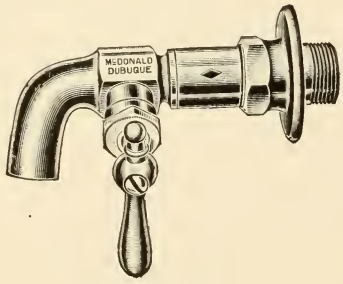


Plate E3783

FEMALE

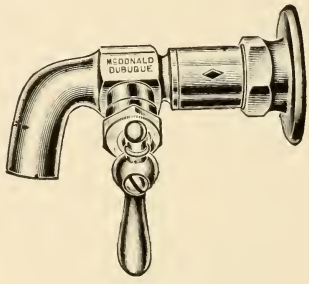


Plate E3784

MALE

Size ..... inches	½	⅝	¾
Price, Finished ..... per dozen	33.60	40.20	54.00
" Nickel-plated ..... "	38.40	45.00	61.20

FEMALE

Price, Finished ..... per dozen	31.80	38.40	52.20
" Nickel-plated ..... "	36.60	43.20	59.40

LEAD PIPE

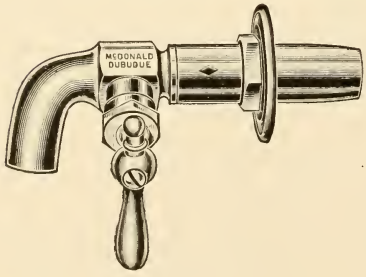


Plate E3785

ADJUSTABLE FLANGE
LEAD PIPE

Size ..... inches	½	⅝
Price, Finished ..... per dozen	34.20	42.00
" Nickel-plated ... "	39.00	46.80

IRON PIPE
(Not Illustrated)

Size ..... inches	½	⅝
Price, Finished ..... per dozen	34.80	42.00
" Nickel-plated ... "	39.60	46.80

IMPROVED FULLER BASIN COCKS

These Fuller basin cocks are well made in attractive designs. Four guides on the stem insure quiet operation and draw the ball straight to the seat, making the ball last much longer. Fuller balls are high quality, suitable for hot or cold water. Special composition packing in the stuffing box prevents leakage there.

Shanks are 2½ inches long and have a ½-inch iron pipe running thread. Tail pieces are threaded for ¼-inch iron pipe. Diameter of base is 2 inches. Center of body to center of spout outlet measures 3¾ inches.

No. 0 REGULAR

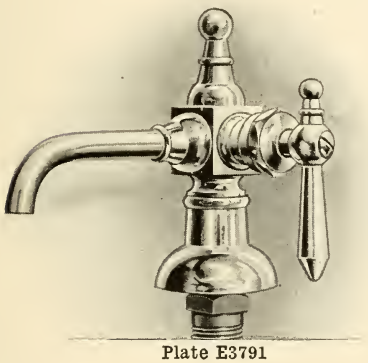


Plate E3791

No. 0 ROUND BODY

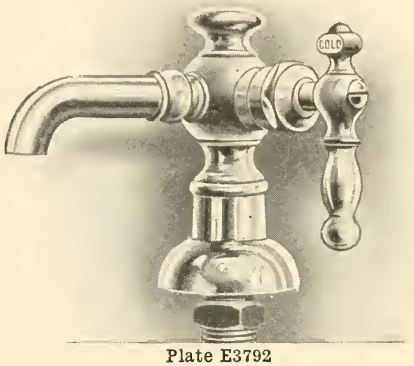


Plate E3792

No. 0 Regular, Nickel-plated	per dozen	39.00
" 0 Round Body, Nickel-plated	"	39.00
Add for China Indexed Handle	"	9.00

No. 1

Plate E3793

No. 2

Plate E3794

No. 1, Nickel-plated, with 2½-inch Shank	per dozen	45.00
" 1 " " 3 " "	"	47.40
" 2 " " 2½ " "	"	51.00
" 2 " " 3 " "	"	53.40

IMPROVED FULLER BASIN COCKS

These Fuller Basin Cocks are well made in attractive design. Four guides on the stem insure quiet operation and draw the ball straight to the seat, making the ball last much longer. Fuller Balls are high quality, suitable for hot or cold water. Special composition packing in the stuffing box prevents leakage there. Handles of right-hand basin cocks are indexed cold while the left-hand ones are indexed hot.

Shanks are 2½ inches long and have a ½-inch iron pipe running thread. Tail pieces are threaded for ¼-inch iron pipe. Diameter of base is 2 inches. Center of body to center of spout outlet measures 3¾ inches.

The union in the body of Fuller Basin Cocks is of decided value, as it permits easy repair without disturbing the connections below.

WITH UNION

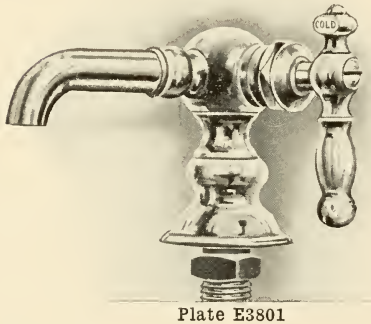


Plate E3801

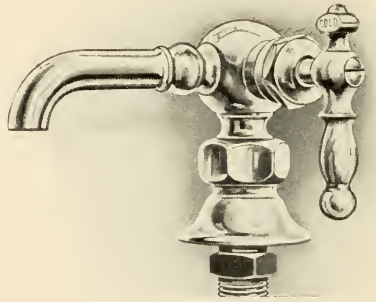


Plate E3802

Plate E3801, Nickel-plated.....per dozen **42.00**
" E3802, " ..... " **54.00**
Add for China Indexed Handle.....per dozen **9.00**
" " " Index in Top of Body..... " **6.00**

WITH UNION

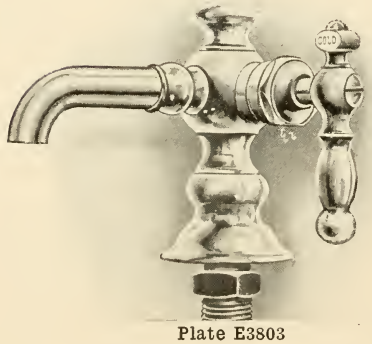


Plate E3803

Plate E3804

Plate E3803, Nickel-plated.....per dozen **43.80**
" E3804, " ..... " **55.80**
Add for China Indexed Handle.....per dozen **9.00**

IMPROVED FULLER BASIN COCKS

CHINA HANDLE CHINA INDEX

These are very attractive and well made. China handles are preferable to brass, as there is no danger of use wearing off the nickel-plate. Four guides on the stem insure quiet operation and draw the ball straight to the seat, making the ball last much longer. Fuller balls are high quality, suitable for hot or cold water. Special composition packing in the stuffing box prevents leakage there. China index is cold on right hand-cocks and hot on left-hand cocks.

Shanks are 2½ inches long and have a ½-inch iron pipe running thread. Tail pieces are threaded for ¼-inch iron pipe. Diameter of base is 2 inches. Center of body to center of spout outlet measures 3¾ inches.

The union in the body of the Fuller Basin Cocks is of decided value, as it permits easy repair without disturbing connections below.

WITH UNION

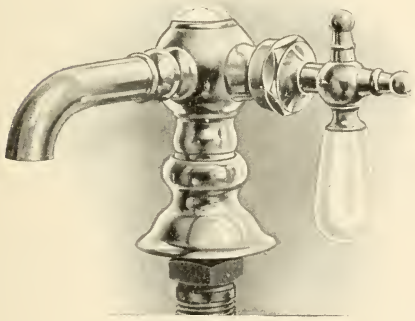


Plate E3811

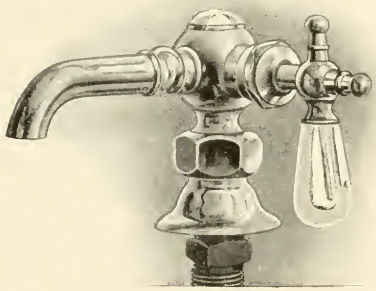


Plate E3812

Plate E3811, Nickel-plated .....per dozen 57.00
" E3812, " ..... " 69.00

WITH UNION

Plate E3813

Plate E3814

Plate E3813, Nickel-plated .....per dozen 58.80
" E3814, " ..... " 70.80

IMPROVED FULLER BASIN COCKS

ADJUSTABLE SWIVEL SPOUT RIGHT OR LEFT

SQUARE BODY

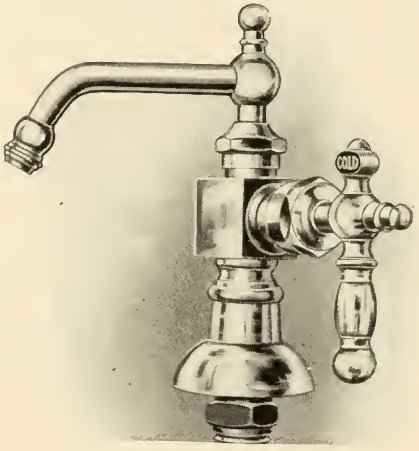


Plate E3821

ROUND BODY WITH UNION

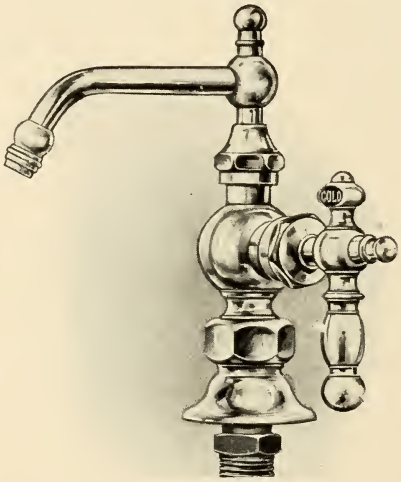


Plate E3822

The only basin cock on the market that is positively right or left without any adjustment, simply set in place with the handle to the right or left as desired.

The spout is arranged with a swivel joint so that it will swing in any direction, and tne handles are double stamped, being marked "cold" on one side and "hot" on the reverse, so that which ever way it is used it will be properly indexed.

The spout may be swung to the center of the bowl or to one side, or it may be swung entirely out of the way to either side.

The usual overhanging spouts prevent full and free access to the bowl, as they occupy from ¼ to ⅓ of the available space of the bowls, and injuries to the hands or face are not infrequent as a consequence.

With the use of this basin cock the bowl is filled with water, then the spouts are swung out of the way to either side, making the full bowl accessible without obstruction of any kind.

Diameter of base is 2 inches. Center of body to center of spout outlet measures 4⅛ inches.

Price, Square Body, Nickel-plated	per dozen	**66.00**
" Round " " with Union	"	**78.00**
" " " " without Union	"	**66.00**
Add for China Handles, Indexed Both Sides	per dozen	**9.00**

FULLER BRACKET BASIN COCKS

FOR IRON PIPE

SWIVEL SPOUT ADJUSTABLE FLANGE

SQUARE BODY

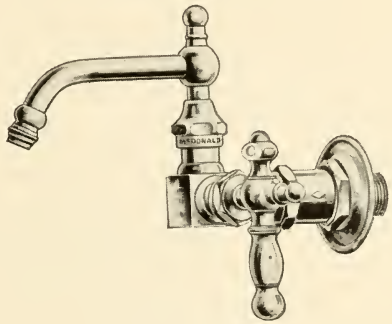


Plate E3831

Price, Nickel-plated, for ½-inch Pipe	per dozen	72.00
Add for China Indexed Handle	"	9.00

ROUND BODY

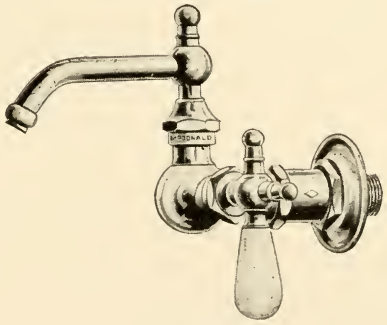


Plate E3832

Price, Nickel-plated, for ½-inch Pipe	per dozen	81.00
Add for Union in Body	"	12.00
Deduct if with Brass Handle	"	9.00

Any of these bracket basin cocks can be furnished for lead pipe at the same price.

IMPROVED FULLER BRACKET SHAMPOO COCK

SWIVEL SPOUT IRON PIPE ADJUSTABLE FLANGE

Designed for use on the back of lavatories. Spout is fitted with a sprinkler, and can be turned back out of the way when not in use.

Diameter of flange is 2⅜ inches. Center of swivel to point where sprinkler attaches to spout measures 4½ inches. From flange to center of body or swivel measures about 3¼ inches.

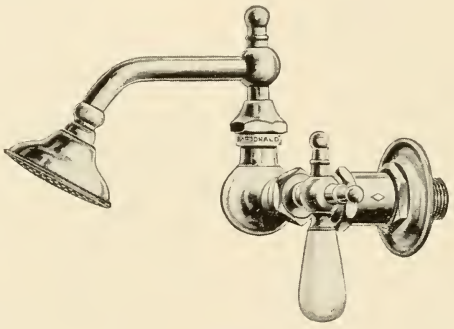


Plate E3841

Price, Nickel-plated for ½-inch Pipe	per dozen	90.00
Add for Union in Body	"	12.00
Deduct if with N. P. Brass Handle	"	9.00

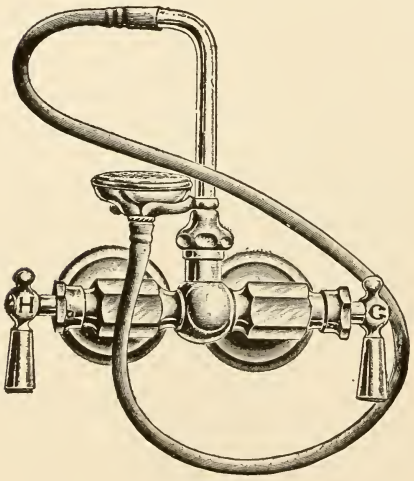


Plate E3842

IMPROVED FULLER DOUBLE BRACKET SHAMPOO COCK

SWIVEL SPOUT FOR IRON OR LEAD PIPE

For use on the back of lavatories. Swivel spout can be turned back out of the way when not in use. Sent without rubber hose but with sprinkler. Unions connect body to shanks. End of spuds is threaded for ¾-inch iron pipe.

Price, Nickel-plated for ½-inch Pipe, no Hose	each	12.50
Add for Indexed China Handles	per pair	1.50

Specify if wanted for lead pipe.

FULLER DOUBLE PANTRY COCKS

BOTTOM SUPPLY

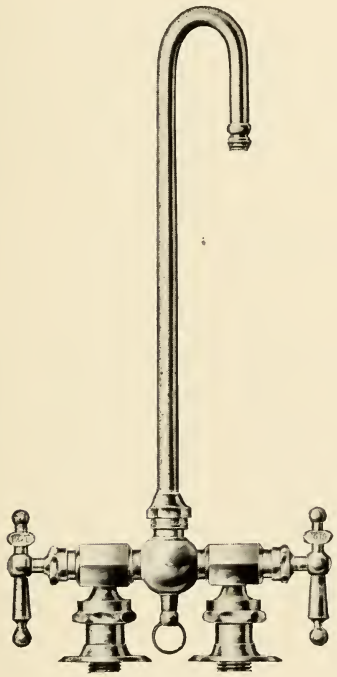


Plate E3851

WALL SUPPLY

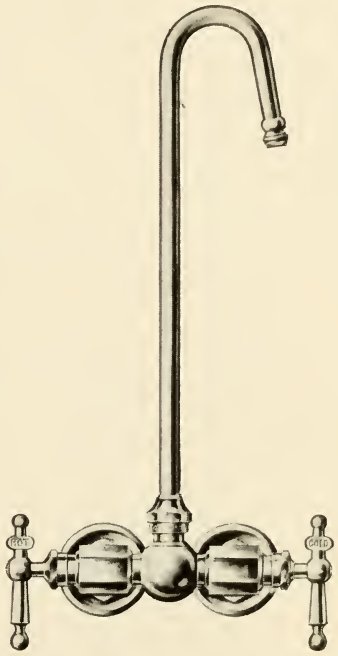


Plate E3852

The cocks have swivel spouts which can be turned back out of the way when not in use. Spuds are threaded for ¾-inch iron pipe.

Price, Top Supply, Nickel-plated with Brass Handles	each	12.00
" Wall " " " " " "	"	12.00
Add for China Handles	per pair	1.50

IMPROVED FULLER PANTRY COCKS

Regularly these pantry cocks measure 13 inches from base to outlet of spout, but they can be furnished with longer or shorter spouts, if desired. Diameter of base is 2 inches. Shank is 2½ inches long and has a ½-inch iron pipe running thread. Tail pieces are threaded for ¼-inch pipe.

No. 0

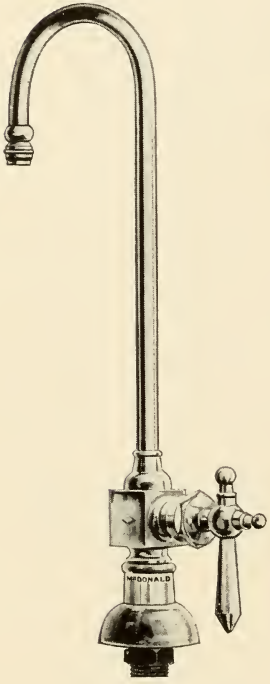


Plate E3861

No. 1

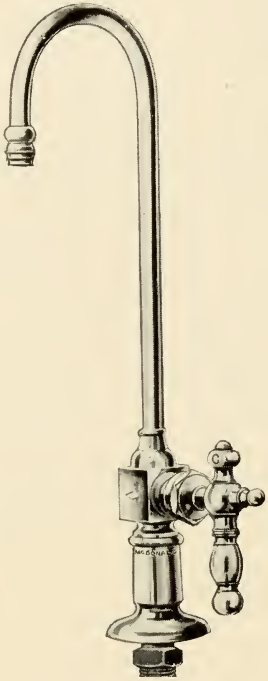


Plate E3862

WITH UNION, CHINA HANDLE

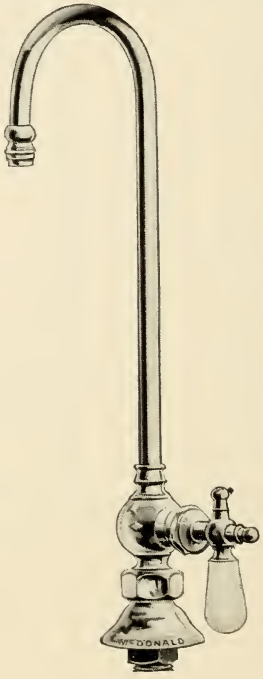


Plate E3863

Price, No. 0, Nickel-plated	per dozen	54.00
" " 1 " "	"	54.00
Add for China Handles	"	9.00
Price, with Union and China Handle, Nickel-plated	"	69.00
Deduct if with Brass Handle	"	9.00
" " without Union	"	6.00
Add for Hose End	"	3.60

FULLER REPAIRS

HANDLES

Plate E3871

This illustrates a plain brass handle, but we will furnish handles the same as we show on our bibbs, basin cocks or bath cocks at the prices listed below. In ordering, state what they are wanted for. These handles are made for round or square taper eccentrics, so please state which kind is wanted.

Price, Brass Finished or Nickel-plated	per dozen	4.80
" Indexed China or Plain China	"	13.80

ECCENTRICS

Plate E3872

In ordering eccentrics, state whether finished or nickel-plated are desired; also state whether for bibb, basin cock or bath cock, and state size of bibb or plate number of basin cock or bath cock. The eccentrics for bath and basin cocks cost the same as ½-inch bibb eccentrics.

Eccentrics are made with round taper top as shown here, and with square taper top, so be sure and state which style is wanted.

Size inches	½	⅝	¾	1
Price, Finished or Nickel-plated per dozen	3.00	3.60	4.20	9.00

RUBBER BALL

Plate E3873

STEM AND BALL

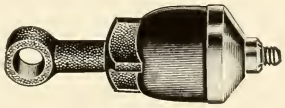


Plate E3874

Size inches	½	⅝	¾	1
Price, Rubber Balls per dozen	.60	.60	.60	1.20
" Stem and Ball "	3.00	3.60	4.20	9.00

BRASS CAP

Plate E3875

BRASS STEM NUT

Plate E3876

Size inches	½	⅝	¾	1
Price, Brass Caps per dozen	.30	.36	.45	.54
" " Stem Nuts "	.30	.30	.30	.36

IMPROVED FULLER BATH COCKS

No. 4½ NICKEL-PLATED

INDEXED BRASS HANDLES **3⅜ INCHES CENTER TO CENTER**

Our Fuller double bath cocks are full size, well made and carefully tested. Our nickel plating is exceptionally good. There are four guides on the stem to draw the ball straight to the seat, insuring quiet operation and causing the ball to last longer. Fuller balls are a high quality composition, suitable for hot or cold water. Special composition packing is used in the stuffing boxes to prevent leakage there. Spuds or shanks of bath cocks have ¾-inch iron pipe running thread. Regularly sent with locknuts, without couplings.

WITH JEWEL CUP

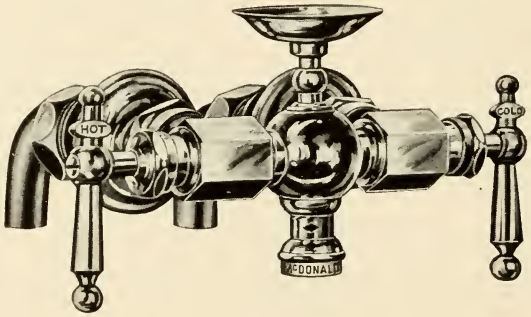


Plate E3881

Price, without Couplings, with Locknuts ..... each **7.50**

WITHOUT JEWEL CUP

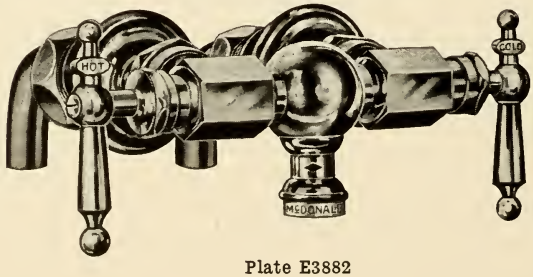


Plate E3882

Price, without Couplings, with Locknuts ..... each	**7.00**
Add for Rough Couplings for Lead Pipe	**.80**
" " " " " Iron Pipe, Male	**.95**
" " Finished Couplings for Iron Pipe, Male	**1.40**
" " Rough Couplings for Iron Pipe, Female	**1.65**
" " Finished Couplings for Iron Pipe, Female	**2.25**
" " Indexed China Handles	**1.50**

Union nut and hose ferrule for connection to rubber tube for shower can be furnished at additional cost.

IMPROVED FULLER BATH COCKS

No. 4½ NICKEL-PLATED

INDEXED HANDLES 3⅜ INCHES CENTER TO CENTER

WITH BALL OFFSET COUPLINGS

The ball offset couplings are heavy, well made and carefully tested, and are threaded for ½-inch iron pipe. Offset couplings measure 7½ inches from center to center of spread.

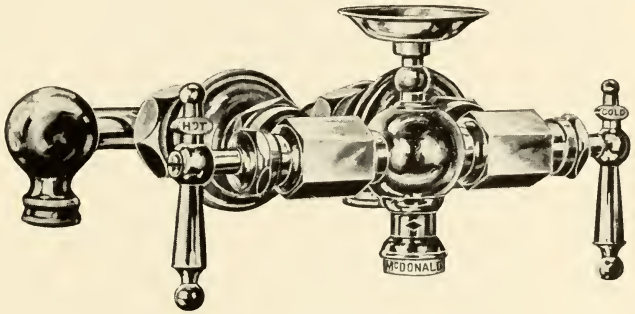


Plate E3891

Price, with Indexed Brass Handles and Jewel Cup	each	9.75
" " " China " " " "	"	11.25
" " " " " without Jewel Cup	"	10.75

WITH INDEXED CHINA HANDLES

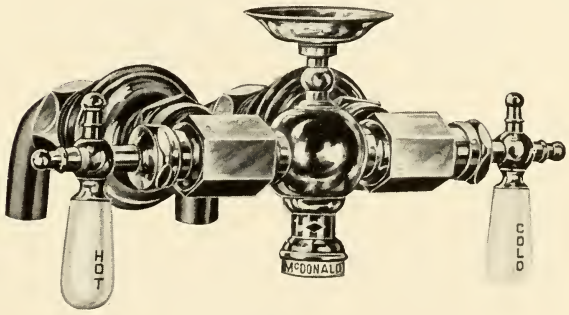


Plate E3892

Price, without Couplings, with Lock Nuts	each	9.00
" with Rough Couplings for Lead Pipe	"	9.80
" " " " " Iron Pipe, Male	"	9.95
" " Finished Couplings for Iron Pipe "	"	10.40
" " Rough " " " " Female	"	10.65
" " Finished " " " " "	"	11.25

Indexed china handles are sent cold on right hand and hot on left hand as shown.

Union nut and hose ferrule for connection to rubber tube for shower, can be furnished at additional cost.

FULLER BATH COCKS AND SUPPLY PIPES

No. 4½ NICKEL-PLATED FULLER BATH COCK

WITH DIAMOND ONE-PIECE BATH SUPPLY PIPES
SEAMLESS DRAWN ANNEALED

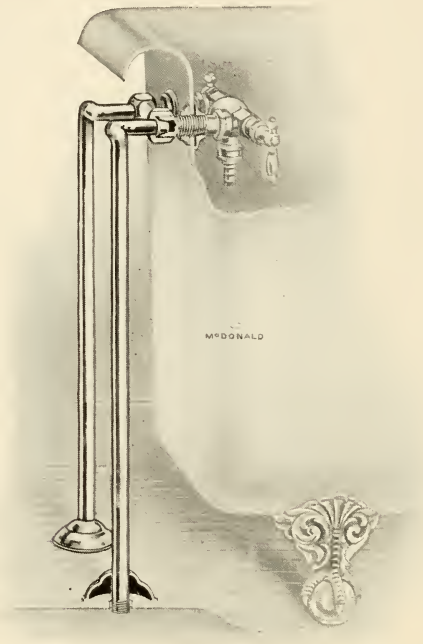


Plate E3901

This illustrates our No. 4½ Fuller Double Bath Cock and Diamond One Piece offset bath supplies attached to a bath tub.

These supplies are threaded for ½-inch iron pipe, and are guaranteed to be one piece, without screwed or soldered joints. The pipe is bent smoothly and evenly and the shoulder and ground face are formed from the same piece of brass pipe. There are no joints between the connection at the bath cock spud and the fitting under the floor. They are carefully finished and nickel-plated.

The end of the pipe running to the spud slopes slightly upward to meet the natural pitch of the spud occasioned by the back of the tub so that the ground face of the pipe will always fit the beveled seat in the spud, resulting in a tight, neat and workmanlike joint.

Made of seamless drawn annealed brass pipe, No. 12 B. & S. Gauge, (No. 14 Stubs Gauge). No joints between the bath cock spud and the service pipe. Tested and guaranteed for 150 lbs. working pressure. Sent with N. P. stamped brass floor flanges.

The supply pipes are 20½ inches long from top to lower end, and have 7½ inches spread at the floor, center to center of pipes.

Price, Bath Cock and Supplies without Jewel Cup	per set	**11.75**
" " " " " with Jewel Cup	"	**12.25**
Diamond One Piece Bath Supplies, without Cock	per pair	**4.75**
Add for Indexed China Handles	per set	**1.50**

FULLER BATH COCKS AND SUPPLY PIPES

No. 4½ NICKEL-PLATED FULLER BATH COCK

WITH ½ INCH BALL OFFSET BATH SUPPLY PIPES
SEAMLESS DRAWN ANNEALED

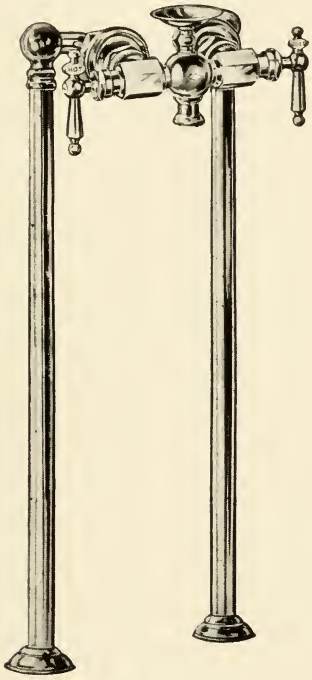


Plate E3911

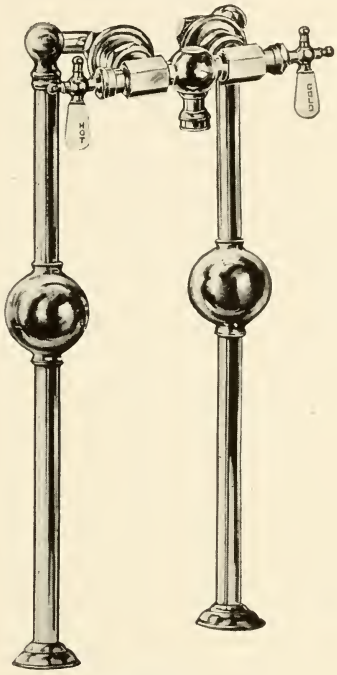


Plate E3912

PLATE E3911

Made of seamless drawn, annealed brass pipe, either No. 12 or No. 10 B. & S. gauge (the No. 10 is full iron pipe size). Suitable for pressures up to 125 pounds. Nickel-plated stamped brass floor flanges are included with these. The ball offset couplings are heavy, well made and carefully tested.

The supply pipes are 20½ inches long from center of ball to lower end, and have 7½ inches spread at the floor, center to center of pipes.

Gauge (B. & S.) of Brass Pipe	number	12	10
Price, Bath Cock and Supplies, with Jewel Cup	per set	12.25	13.00
" " " " " without Jewel Cup	"	11.75	12.50
Add for Indexed China Handles	"	1.50	1.50

PLATE E3912

Brass pipe is No. 12 B. & S. gauge, seamless drawn, annealed. Suitable for pressures up to 125 pounds. The globe air chambers are heavy cast brass.

Supply pipes measure 20½ inches long from center of ball at top to lower end, and have 7½-inch spread at the floor, center to center of pipes. Sent with nickel-plated stamped brass floor flanges.

Price, Bath Cock with China Handles and Supply Pipes	per set	18.75
" " " " Brass " " " "	"	17.25
Add for Jewel Cup on Bath Cock	each	.50

FULLER BATH COCKS AND SUPPLY PIPES

NO. 4½ NICKEL-PLATED FULLER BATH COCK

WITH 9/16 INCH O. D. ONE PIECE BATH SUPPLY PIPES

SEAMLESS DRAWN ANNEALED

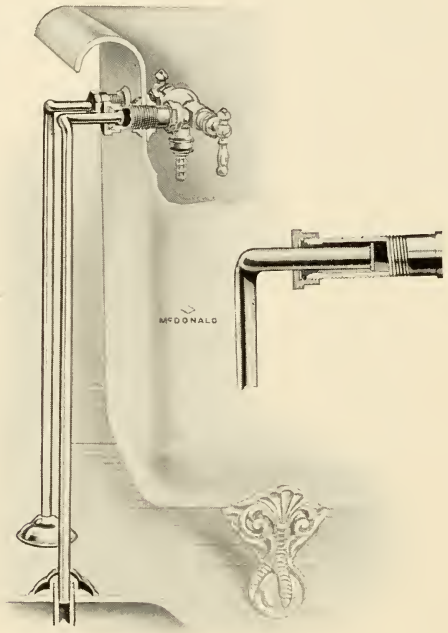


Plate E3921

Above is shown our No. 4½ nickel-plated Fuller double bath cock, with 9/16-inch O. D. one piece offset bath supply pipes.

These supply pipes are seamless, drawn, annealed brass tubing, No. 16 B. & S. gauge, 9/16-inch outside diameter, to telescope into ½-inch iron pipe at the floor.

The upper end of the supply pipe telescopes into the spud of the bath cock (note the sectional view to the right), and permits a variation or adjustment of 1½ inches in or out of the spud to meet roughing in at the floor. The upper end of the supply pipe is flared out, or beveled, so that it cannot be forced out of union nut under pressure.

A beveled rubber washer and brass friction ring make a perfect joint between the supply pipe and bath cock spud.

A nickel-plated slip joint nut with rubber washer and brass friction ring makes the connection between supply pipe and the ½ inch iron pipe at the floor.

Nickel-plated stamped brass floor flanges are sent, which cover the nickel-plated slip joint nut at the floor.

Tested at 150 lbs., but not recommended for over 100 pounds, working pressure.

Measure 21 inches long from top to lower end, and have 7½ inches spread at the floor center to center of pipes.

Price, Bath Cock and Supplies, without Jewel Cup.....per set **10.80**
" " " " " with Jewel Cup..... " **11.30**
Add for Indexed China Handles.....per set **1.50**

BATH SUPPLY PIPES

DIAMOND ONE PIECE OFFSET BATH SUPPLIES

SEAMLESS DRAWN ANNEALED

THREADED FOR ½-INCH IRON PIPE

Plate E3931

These supplies are guaranteed to be one piece and devoid of screwed or soldered joints; the pipe is bent smoothly and evenly and the shoulder and ground face are formed from the same piece of pipe. There are positively no joints between the connection at the bath cock spud and the fitting under the floor.

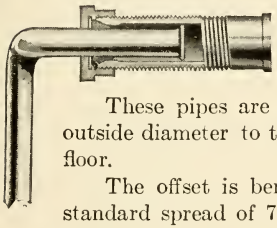
The end of the pipe running to the spud slopes slightly upward to meet the natural pitch of the spud occasioned by the back of the tub so that the ground face of the pipe will always fit the beveled seat in the spud, resulting in a tight, neat and workmanlike joint.

Made of seamless drawn annealed brass pipe, No. 12 B. & S. Gauge (No. 14 Stubs Gauge). No joints between the bath cock spud and the service pipe. Tested and guaranteed for 150 lbs. working pressure.

Price, Nickel-plated.....per pair **4.75**

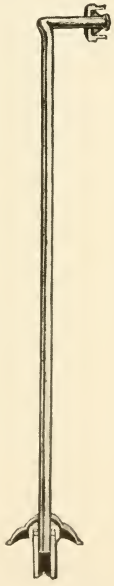
ONE PIECE OFFSET BATH SUPPLIES

SEAMLESS DRAWN ANNEALED



$\frac{9}{16}$ INCH O. D.

TO TELESCOPE INTO ½-INCH IRON PIPE AT THE FLOOR



These pipes are seamless, drawn, annealed brass tubing, $\frac{9}{16}$ inch outside diameter to telescope into the ½-inch roughing in pipe at the floor.

The offset is bent in the pipe, smoothly and evenly to give the standard spread of 7½ inches.

The pipe is No. 16 B. & S. Gauge (No. 18 Stubs) and can easily be bent if necessary when making the connections.

The end telescoping into spud of bath cock provides a latitude of 1½ inches in or out to meet roughing in at floor and is beveled so it cannot blow out from union nut when under pressure.

Beveled rubber washer and brass friction ring make perfect joint at the spud.

Furnished with ½-inch slip joint nut, rubber washer and brass friction ring for connection at the floor and a spun brass floor flange to cover as shown.

Tested at 150 lbs. but not recommended for working pressure in excess of 75 lbs.

Price, Nickel-plated.....per pair **3.80**

Plate E3932

BATH SUPPLY PIPES

NICKEL-PLATED

BALL OFFSET SEAMLESS DRAWN ANNEALED

The bath supply pipes shown on this page are made from either No. 12 or No. 10 B. & S. gauge, seamless drawn, annealed brass tubing, and are threaded for ½-inch iron pipe. The No. 10 gauge is full ½-inch iron pipe size.

Ball offset couplings are heavy, well made and tested, and the union nut is threaded for ¾-inch pipe where it screws on the bath cock spud. Sent with nickel-plated stamped brass floor flanges.

The stop cocks shown on two of the supply pipes are high grade compression stops, red metal.

We recommend the use of a stop cock in all supply pipes, whether for bath, lavatory or closet, as they permit repair of any fixture without shutting off the water elsewhere.

Tested and guaranteed for 125 lbs. working pressure.

Measure 20½ inches long from center of bale to lower end.

PLAIN

Plate E3941

PLAIN, WITH WHEEL HANDLE STOP

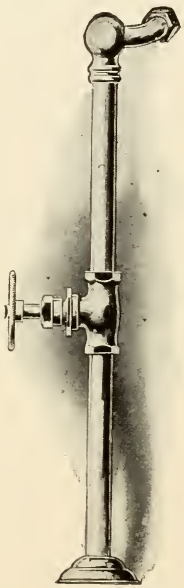


Plate E3942

PLAIN, WITH LOOSE KEY STOP

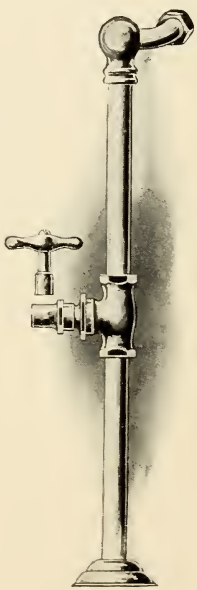


Plate E3943

Gauge (B. & S.) of Brass Pipe	number	12	10
Price, Plain, Nickel-plated	per pair	4.75	5.50
" with Wheel Handle Stop, Nickel-plated	"	9.25	10.00
" " Loose Key Stop, Nickel-plated	"	9.25	10.00

Straight, 45° or 90° elbow supply pipes at the same prices as above.

BATH SUPPLY PIPES

NICKEL-PLATED

BALL OFFSET SEAMLESS DRAWN ANNEALED

WITH AIR CHAMBERS

These bath supplies are made from either No. 12 or No. 10, B. & S. Gauge, seamless drawn, annealed brass tubing, and are threaded for ½-inch iron pipe at the lower end. The No. 10 gauge is full ½-inch iron pipe size.

Ball-offset couplings are heavy, well made and tested, and the union nut at the top is threaded for ¾-inch pipe where it screws onto the bath cock spud. Sent with nickel-plated stamped brass floor flanges.

Air chambers are the same size as the rest of the supply pipes, and are desirable where water pressure is high, as they relieve the pounding and hammering in the pipes caused by rapid closing of faucets or cocks.

Stop cocks are shown on two of these supplies. They are high-grade compression stops, made of red metal.

We recommend the use of a stop cock in all supply pipes, whether for bath, lavatory, sink or closet, as they permit repair of any fixture without shutting the water off elsewhere.

Tested and guaranteed for 125 pounds working pressure.

Measure 20½ inches from center of ball to lower end.

PLAIN AIR CHAMBER

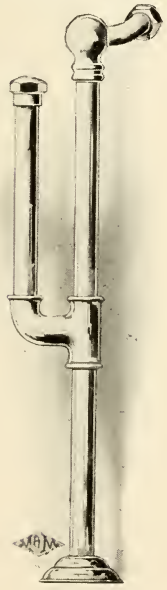


Plate E3951

PLAIN AIR CHAMBER WITH WHEEL HANDLE STOP

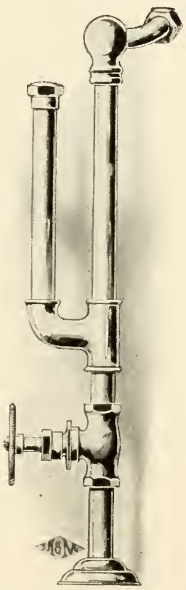


Plate E3952

PLAIN AIR CHAMBER WITH LOOSE KEY STOP

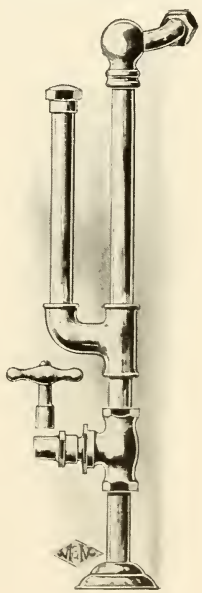


Plate E3953

Gauge (B. & S.) of Brass Pipe	number	12	10
Price, Plain Air Chamber, Nickel-plated	per pair	9.00	10.00
" " " " and Wheel Handle Stop, Nickel-plated	"	13.50	14.50
" " " " " Loose Key Stop, Nickel-plated	"	13.50	14.50

Straight, 45° or 90° elbow supply pipes at the same prices as above.

BATH SUPPLY PIPES

NICKEL-PLATED

GLOBE AIR CHAMBER BALL OFFSET

SEAMLESS DRAWN, ANNEALED PIPE

These Globe air chamber bath supplies are attractive and efficient. The globe is heavy cast brass and the brass tubing is either No. 12 or No. 10 B. & S. gauge, seamless drawn, annealed, screwed into the air chamber and the ball offset coupling. Threaded at the lower end for ½-inch iron pipe, while the union nut at the upper end is threaded for ¾-inch pipe. Ball offset couplings are heavy, well made and carefully tested. No. 10 B. & S. gauge tube is full ½-inch iron pipe size. Sent with nickel-plated stamped brass floor flanges.

Air chambers are desirable where pressures are high, as they relieve the pounding and hammering in the pipes caused by rapid closing of the faucets or cocks.

High grade compression stops are shown on two of these supply pipes. We recommend the use of a stop cock in all supply pipes, whether for bath, lavatory, sink or closet, as they permit the repair of any fixture without shutting off the water elsewhere.

Tested and guaranteed for 125 pounds working pressure.

Measure 20½ inches from center of ball at top to the lower end.

GLOBE AIR CHAMBER

Plate E3961

GLOBE AIR CHAMBER WITH WHEEL HANDLE STOP

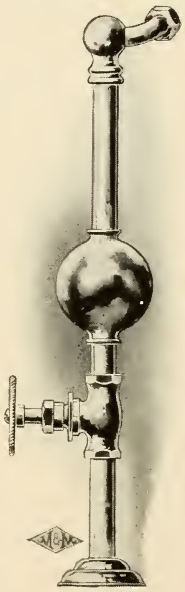


Plate E3962

GLOBE AIR CHAMBER WITH LOOSE KEY STOP

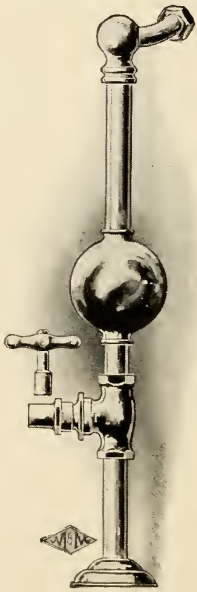


Plate E3963

Gauge (B. & S.) of Brass Pipe	number	12	10
Price, Globe Air Chamber, Nickel-plated	per pair	**10.25**	**11.00**
" " " " with Wheel Handle Stop, N. P.	"	**14.75**	**15.50**
" " " " " Loose Key Stop, N. P.	"	**14.75**	**15.50**

Straight 45° or 90° elbow supply pipes at same prices as above.

BATH SUPPLY PIPES

NICKEL-PLATED

PEAR AIR CHAMBER BALL OFFSET

SEAMLESS DRAWN, ANNEALED PIPE

These Pear air chamber bath supplies are the most attractive in design, and the air chamber capacity is greater than in any other of our supplies. The cast brass air chamber has ½-inch No. 12 or No. 10 B. & S. gauge. Seamless drawn, annealed brass pipe screwed into it at either end. The No. 10 gauge brass pipe is full ½-inch iron pipe size.

Threaded at the lower end for ½-inch iron pipe, the union at the upper end being threaded for ¾-inch pipe.

Air chambers are desirable where pressures are high, as they relieve the pounding and hammering in the pipes caused by rapid closing of the faucets or cocks.

We show two of these supply pipes with high grade compression stops. We recommend the use of a stop cock in all supply pipes, whether for bath, lavatory, closet or sink, as they permit the repair of any fixture without shutting off the water elsewhere.

Tested and guaranteed for 125 pounds working pressure.

Measure 20½ inches from center of ball at the top to the lower end.

PEAR AIR CHAMBER

Plate E3971

PEAR AIR CHAMBER WITH WHEEL HANDLE STOP

Plate E3972

PEAR AIR CHAMBER WITH LOOSE KEY STOP

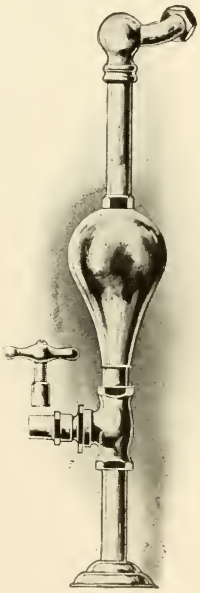


Plate E3973

Gauge (B. & S.) of Brass Pipe.....number		12	10
Price, with Air Chamber, Nickel-plated.....per pair		11.50	12.25
" " " " with Wheel Handle, Stop, Nickel-plated	"	16.00	16.75
" " " " " Loose Key Stop, Nickel-plated...	"	16.00	16.75

COMPRESSION BATH SUPPLY AND WASTE

An attractive and substantial fixture, highly polished and nickel-plated, for use outside the rim of enameled bath tubs. It does away with the bath cock inside the tub.

STANDING WASTE eliminates the chain and plug inside the tub, and is large and heavy, furnished with either china indexed brass handle or solid china indexed handle.

SUPPLY VALVES are high grade compression angle stops, attached to 1½-inch seamless annealed brass supply pipes, and heavy cast brass discharge fittings. The angle valves are fitted with either 5 ball china indexed brass handles, or large 4-arm indexed solid china handles as listed below.

TOP BELL SUPPLY is fitted with a union hose connection to fit ½-inch rubber hose or tubing and can be used for filling pails or pitchers.

Measurements. Center to center of supply pipes, 10 inches. Center of strainer in tub to center of standing waste, 9 inches.

Nickel-plated stamped brass floor flanges are sent for supply pipes and waste. Waste tube is 1½ inches outside diameter.

Tub must be drilled special for these fixtures.

LOW BELL SUPPLY

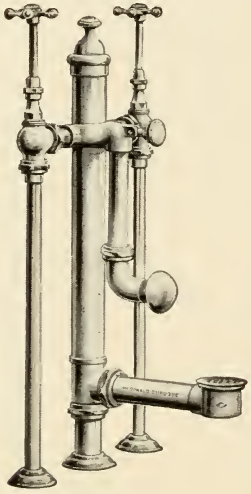


Plate E3981

TOP BELL SUPPLY

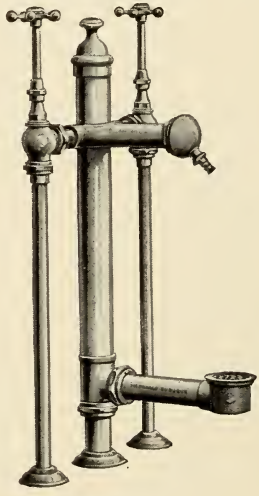


Plate E3982

PLATE E3981

With 5-ball China Indexed Nickel-plated Handles on Stops and China Indexed Brass Handle on Waste.....each **16.50**

With 5-ball China Indexed Nickel-plated Handles on Stops and Solid China Indexed Handle on Waste.....each **17.00**

With 4-arm Indexed Solid China Handles on Stops and Solid China Indexed Handle on Waste.....each **17.50**

PLATE E3982

With 5-ball China Indexed Nickel-plated Handles on Stops and China Indexed Brass Handle on Waste.....each **15.50**

With 5-ball China Indexed Nickel-plated Handles on Stops and Solid China Indexed Handle on Waste.....each **16.00**

With 4-arm Indexed Solid China Handles on Stops and Solid China Indexed Handle on Waste.....each **16.50**

These fixtures are regularly made for use with enameled iron bath tubs, but we will furnish them to fit solid porcelain tubs on order, at an increased price, which will be quoted on application.

COMBINATION BATH SUPPLY AND WASTE

DIAMOND THREE VALVE

LOWER BELL SUPPLY UPPER SHOWER CONNECTION

STANDING WASTE

This fixture meets a growing demand for a low bell supply fixture which permits a quiet filling of the tub, and also provides a connection for supplying a portable shower bath with water. The center valve has a double disc and two valve seats, closing against the upper valve seat to fill the tub through the lower bell supply, and against the lower seat to provide water at the upper bell, which has a union connection for ½-inch hose. The two outside valves control or shut off the hot and cold water. Supply pipes are threaded for ½-inch iron pipe at the floor. Heavy seamless annealed brass tubing and slip joints make this a serviceable fixture, easy to install. The standing waste does away with the chain and plug inside the tub, and is large and heavy, carefully made and nickel-plated. Nickel-plated stamped brass floor flanges are sent for supply pipes and waste. Tub must have special drilling for this fixture.

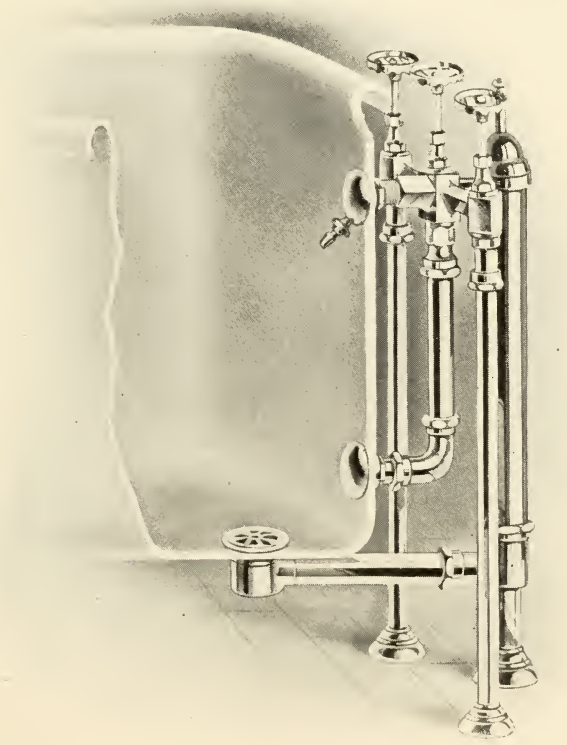


Plate E3991

Price, with Brass Handles on Valves and Waste	each	16.00
" " China Indexed Handles on Valves and Waste	"	17.50
" " " Cross Handles on Valves and Indexed China Knob on Waste	"	19.00

BATH FITTINGS

TOP NOZZLE SUPPLY AND WASTE FITTINGS

COMPRESSION

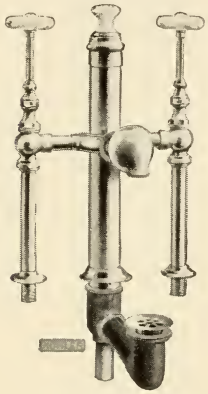


Plate E400A

FULLER

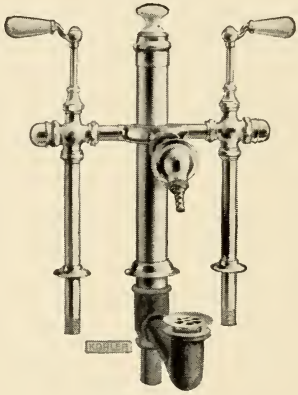


Plate E400B

PLATE E400A

Nickel-plated Compression Combination Supply and Waste Fitting with Top Supply Nozzle, Nickel-plated Supply Pipes, China Cross Handles and China Knob.

Price, with ½-inch Supply Pipes 37.00
" " ¾ " " " 43.00

PLATE E400B

Nickel-plated Fuller Combination Supply and Waste Fitting with Top Supply Nozzle, Nickel-plated Supply Pipes, China Handles and China Knob.

Price, with ¾-inch Supply Pipe..... 48.00

CONCEALED SUPPLY AND WASTE FITTINGS

COMPRESSION

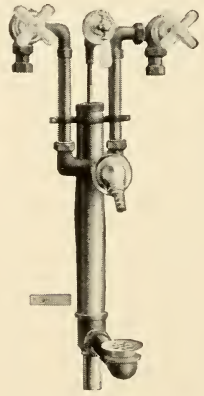


Plate E400C

FULLER

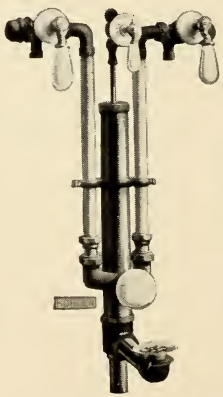


Plate E400D

PLATE E400C

Concealed Compression Combination Supply and Waste Fitting with Top Nozzle, China Cross Handles and China Handle Lever Waste.

Price, as described..... 44.00

PLATE E400D

Concealed Fuller Combination Supply and Waste Fitting with Low Bell Supply and China Handles.

Price, as described..... 49.00

BATH FITTINGS

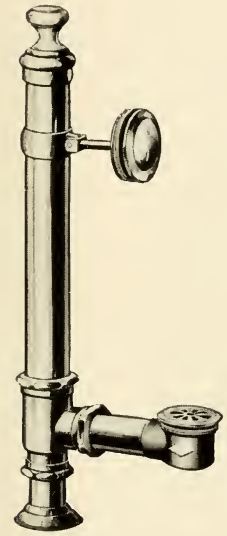


Plate E401A

NICKEL-PLATED STANDING BATH WASTE

This is large and substantial, carefully made and nickel-plated. All parts are either cast brass or brass tubing, no stamped brass parts being used. All the cast brass parts are heavy with deep, sharp threads. The brass tubing is also of good weight.

Good rubber gaskets and brass friction rings permit easy and tight attachment to any tub.

These standing bath wastes are very popular, because they do away with the chain plug and overflow strainer inside the tub.

The flange on the inside of the tub, to which the ring bracing the upper part of the standing waste is attached, is large enough to cover the overflow hole of an ordinary bath tub, so that a special tub is not needed for this fixture. N. P. stamped brass floor flange is sent with this, to fit 1½-inch waste tube.

Price, with Brass Knob or Handle	each	7.50
" " China Indexed Brass Knob	"	8.00
" " Indexed China Knob, as shown	"	8.50

CONNECTED BATH WASTE AND OVERFLOWS

These are made from heavy brass tubing and heavy cast brass parts, no stamped brass being used. They must not be confused with the light ones on the market, made almost entirely with stamped brass nuts, strainers and connections.

1¼-INCH

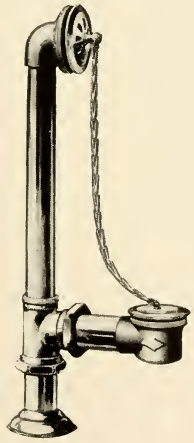


Plate E401B

1½-INCH

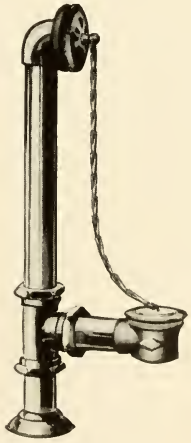


Plate E401C

Price, 1¼-inch N. P. with Chain and Rubber Stopper	each	2.50
" 1½ " " " " " " "	"	3.00

1¼-inch connected waste and overflow has 1½-inch waste below tee.

DIAMOND GLOBE BATH TRAP AND OVERFLOW

Patented Dec. 5, 1905

This combined bath trap and overflow is very popular, because it roughs in the same as a regular connected waste and overflow. It is made plain and vented as shown.

PLAIN

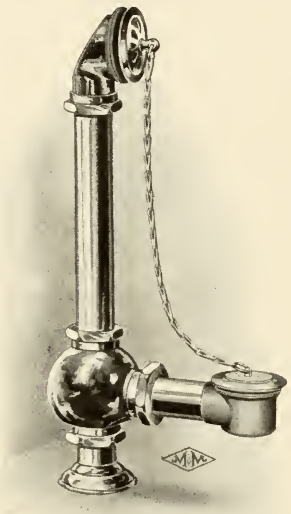


Plate E402A

VENTED

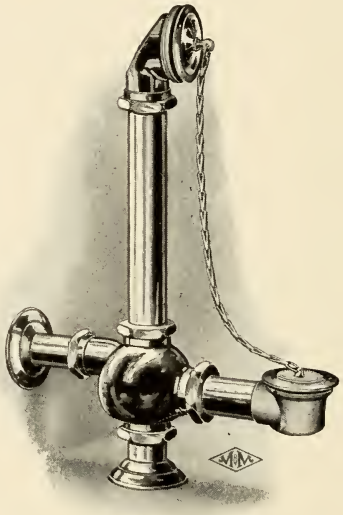


Plate E402B

This bath trap is a perfect globe, slightly flattened at the bottom to allow its use under any tub. It is perfectly trapped and the partitions so formed that no water will ascend the overflow pipe while the tub is emptying, thus keeping the overflow clean.

When the trap is not in action, the water is trapped just at the bath tub strainer, thus leaving no fouling surface, while in the old method of using a drum trap, there were in many cases, several feet of empty waste pipe which together with the overflow formed extensive and excessive fouling surface.

Labor considered, it is much cheaper than the drum trap and usual waste fixtures, with the additional advantage of having the trap above the floor where it is easily accessible and readily removed for cleansing.

COLLAR JOINTS are used at the top and bottom of the trap, and slip joints at the side of trap and at the overflow elbow. The collar on the bottom outlet pipe is cut left hand and is loose in the package, thus allowing the union nut and flange to be removed where the work at the floor is close. This arrangement of collar or shoulder joints and slip joints permits the removal of the trap proper without disturbing the connections in general, and is a convenience worthy of note.

These traps are furnished with either 1¼ or 1½-inch overflow and waste. These are made of heavy brass tubing and heavy cast brass parts, no stamped brass being used.

The waste tubes and plugs on both sizes of these traps are always 1½-inch.

Highly polished and nickel-plated.

Size, Overflow.....inches	1¼	1½
Price, Plain, Nickel-plated.....	5.65	6.00
" Vented, Nickel-plated.....	7.15	7.50

If size is not specified, 1½-inch will always be sent.

BATH TRAP WITH STANDING WASTE

NICKEL-PLATED

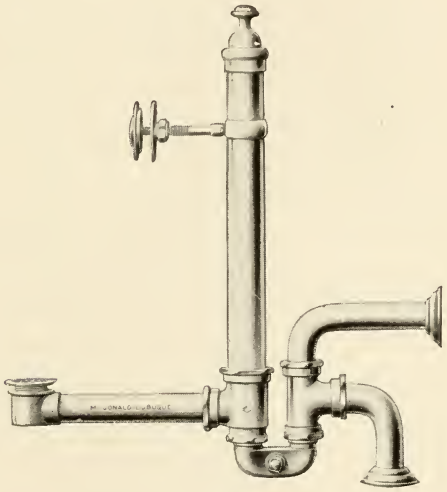


Plate E403A

This meets a rather extensive demand for a bath trap above the floor, to be used with a standing bath waste. A trap above the floor is often desirable, and sometimes necessary, and it is difficult to find one which can be used with standing bath waste. This trap can be used in connection with our connected waste and overflow also.

The trap is 1½ inch with 1½-inch vent, and has union connection to the standing waste. Depth of seal, 2½ inches. Center of inlet to center of tee, 3 inches. Center of tee to center of outlet, 4½ inches. Center of vent, 8¼ inches above the bottom of the trap. As all the connections are union joints, the outlet and vent can be turned in any desired direction. End of vent to center of tee is 4½ inches, but this vent can be furnished any desired length at an extra charge. This trap can be furnished without vent. All unions on this trap are threaded for 1½-inch iron pipe.

The standing waste is a high grade article, large and heavy, highly polished and nickel-plated. Standing bath wastes are very popular as they avoid the use of the chain and plug. Specify what kind of handle or knob is wanted on the standing waste. Nickel-plated stamped brass floor flanges are sent for waste and vent.

Price, Nickel-plated Trap with Brass Handle Standing Waste.....each	12.50
" " " " China Index Standing Waste..... "	13.00
" " " " Solid China Handle Standing Waste..... "	13.50
" " Bath Trap only, without Standing Waste..... "	5.00
Deduct if without Vent.....each	.50

If trap is wanted without vent, state so in ordering.

LAVATORY FITTINGS

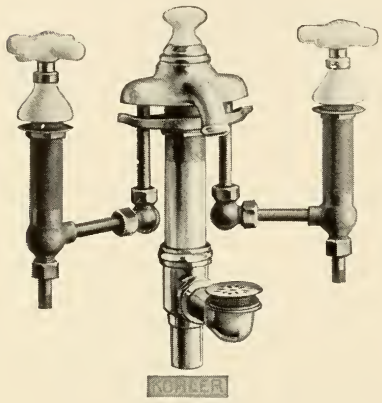


Plate E404A

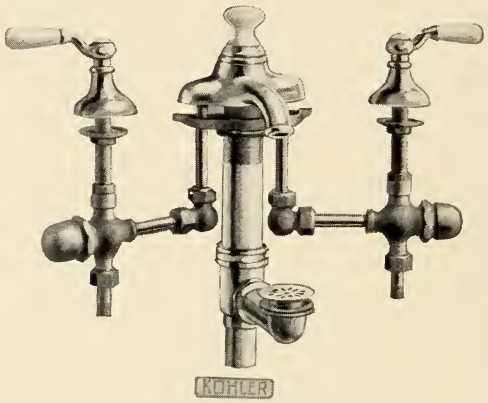


Plate E404B

PLATE E404A

Nickel-plated Compression Combination Supply and Standing Waste Fitting with China Cross Handles, Knob and Escutcheons.

Price, Small Pattern 21.50
" Large " 26.00

PLATE E404B

Nickel-plated Fuller Combination Supply and Standing Waste Fitting with China Lever Handles and Knob.

Price, Small Pattern 23.00
" Large " 30.00

POP-UP WASTE

Plate E404C

Nickel-plated Pop-Up Lavatory Waste with China Cross Handle, Indexed, operating through Back.

Price, as described 8.00
" with China Lever Handle 9.00

SECRET LAVATORY WASTE

NICKEL-PLATED

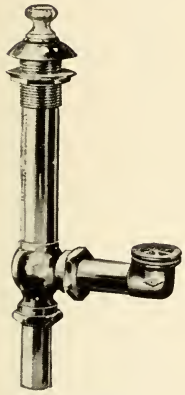


Plate E405A

This is a heavy and well made fixture, adjustable to almost any requirement of enameled, vitreous or marble lavatories.

It requires that the hole in the lavatory be not smaller than 1⅞ inches in diameter or larger than 2⅛ inches. If hole in lavatory is larger than 2⅛ inches, we furnish special nickel-plated cast brass flanges which enable this waste to be used, but it is necessary for us to know diameter of hole in the lavatory so as to know what size of flanges to send.

Secret lavatory wastes are used extensively, and are well liked because they eliminate the unsightly chain and plug in the lavatory.

Price, with Brass Handle	5.00
" " China Indexed Brass Handle	5.50
" " Indexed China Handle	6.00
Add if for Solid Porcelain Lavatory	1.00

STRAIGHT LAVATORY WASTES

These straight lavatory wastes are generally used where there is liability of freezing, the trap being located below the floor. They are made of heavy brass tubing, with cast brass patent overflow plug and rubber stopper. They measure 28 inches long from top of plug to lower end. Brass tube is 1¼-inch outside diameter. Nickel-plated stamped brass floor flange sent with each waste.

PLAIN

Plate E405B

WITH SLIP JOINT

Plate E405C

Price, Nickel-plated, Plain	4.00
" " " with Slip Joint	4.50

BRASS TRAPS

DEEP SEAL ANTI-SYPHON

FOR LAVATORIES, SINKS, ETC.

The traps illustrated below have **HEAVY CAST BRASS BODY, CLEAN OUT SCREW, NUTS AND BASIN PLUG,** with deep, perfect threads. The tubing is No. 19 B. & S. gauge. Heavy stamped brass flanges are sent with these traps. Being carefully finished and heavily nickel-plated, these traps make attractive additions to plumbing fixtures.

These deep seal traps are anti-syphon, due to the form of construction and depth of seal. As shown, they have cast brass patent overflow basin plugs, but when used under sinks, the basin plug is omitted, and the waste tube of the sink makes a slip joint connection same as the basin plug. If the sinks have the old style iron collar for lead pipe, our Plate E4897 nickel-plated sink collar with brass slip tube should be used. When ordered without basin plug, the slip joint nut on inlet of trap fits 1¼-inch O. D. tube on 1¼-inch traps, and 1½-inch O. D. tube on 1½-inch traps, but the 1½-inch trap will be furnished with slip joint nut to fit 1¼-inch O. D. tube when so ordered.

These traps can be swung around, the slip joint connection at basin plug, and the union connection at the top of trap body permitting a large range of adjustment. The clean-out screw is full size of body of trap.

S TRAP

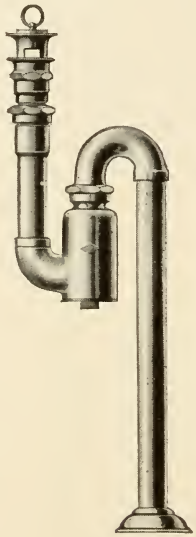


Plate E406A

MEASUREMENTS: S traps are adjustable in length, measuring 25¾ inches to 26¾ inches from bottom of lavatory or sink. S traps measure 5 inches from center of inlet to center of outlet. DEPTH OF SEAL 4⅛ inches, ½ P traps measure 14 inches from center of inlet to end of outlet. All measurements apply to either 1¼-inch or 1½-inch traps.

P TRAP

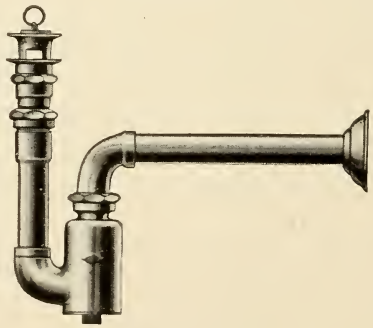


Plate E406B

Size	inches	1¼	1½
Price, S Trap, Nickel-plated	each	5.75	6.75
" P " " "	"	5.50	6.50
If without Basin Plug, deduct		.60	.60

These traps can be furnished with ground joint union at top of trap body, at slight extra charge.

BRASS GLOBE TRAPS

The sectional view below shows internal construction. A brass tube extends dow from the top to make a positive, deep water seal. Body of trap is heavy cast brass with heavy cast brass slip joint nuts at top and bottom. No. 19 B. & S. gauge brass tubing is used. Furnished with cast brass P. O. plug, rubber stopper and stamped brass flanges.

WASTE TO WALL

From top of plug to center of waste elbow, 10 inches minimum to 12 inches maximum. From center of waste ell to end of waste pipe, 12 inches. Vent is 7 inches center to center, higher than waste.

PLAIN

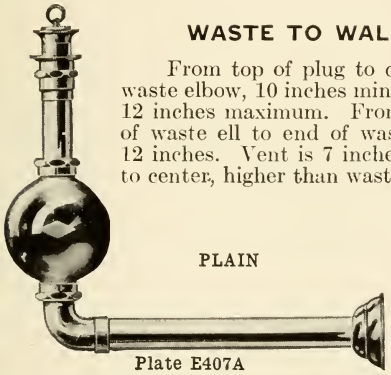


Plate E407A

WITH VENT

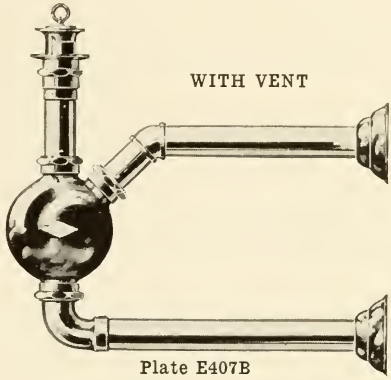


Plate E407B

Size of O. D. Brass Tube ..... inches	1¼	1½
Price, Plain Nickel-plated ..... each	5.00	6.00
" with Vent Nickel-plated ..... "	6.00	7.00

PLAIN

WASTE TO FLOOR

From top of plug to end of waste, 26½ inches minimum to 29 inches maximum.

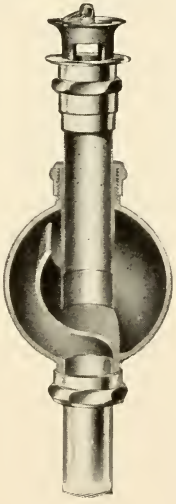


Plate E407C

WITH VENT

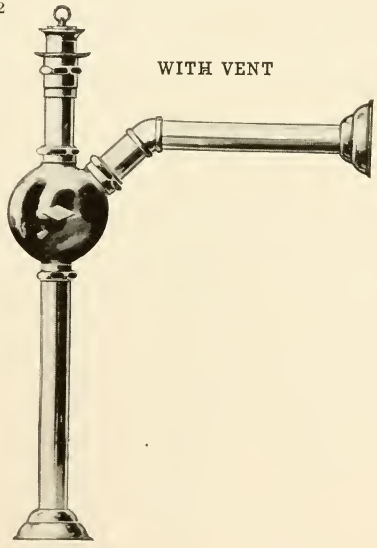


Plate E407D

Size of O. D. Brass Tube ..... inches	1¼	1½
Price, Plain, Nickel-plated ..... each	5.00	6.00
" with Vent, Nickel-plated ..... "	6.00	7.00

BRASS PEAR TRAPS

Body is made of heavy cast brass, with heavy cast brass slip joint nuts at connections. Patent overflow basin plug is cast brass with a rubber stopper. Brass tubing is No. 19 B. & S. gauge, 1¼ inches outside diameter. Nickel-plated stamped brass flanges are sent with these traps.

PLAIN

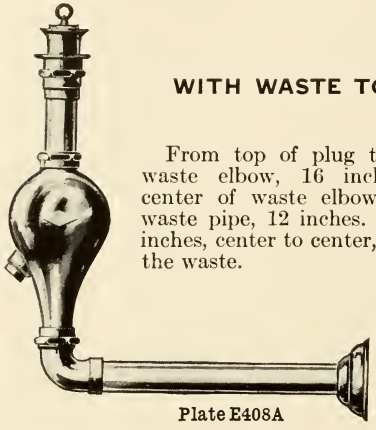


Plate E408A

WITH WASTE TO WALL

From top of plug to center of waste elbow, 16 inches. From center of waste elbow to end of waste pipe, 12 inches. Vent is 11 inches, center to center, higher than the waste.

WITH VENT

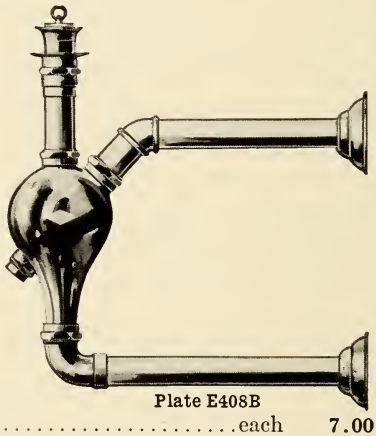


Plate E408B

Price, Plain, Nickel-plated.....each **7.00**
" with Vent, Nickel-plated..... " **8.00**

WITH WASTE TO FLOOR

Pear lavatory traps, with waste to floor, measure from top of plug to end of waste, 30 inches.

PLAIN

Plate E408C

WITH VENT

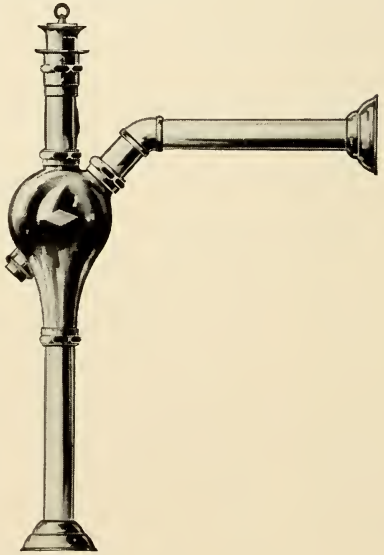


Plate E408D

Price, Plain, Nickel-plated.....each **7.00**
" with Vent, Nickel-plated..... " **8.00**

BRASS FLASK TRAPS

These are good, heavy, cast brass traps, with heavy cast brass basin plug and slip joint nuts. Brass tubing is No. 19 B. & S. gauge, 1¼ inches outside diameter. Nickel-plated stamped brass floor flanges are sent with these traps.

PLAIN

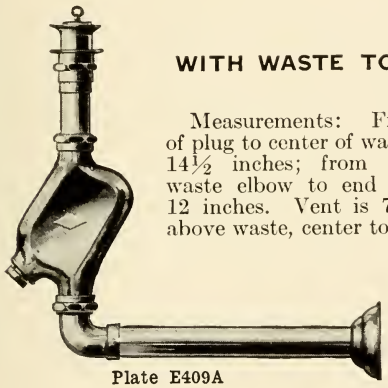


Plate E409A

WITH WASTE TO WALL

Measurements: From top of plug to center of waste elbow, 14½ inches; from center of waste elbow to end of waste, 12 inches. Vent is 7½ inches above waste, center to center.

WITH VENT

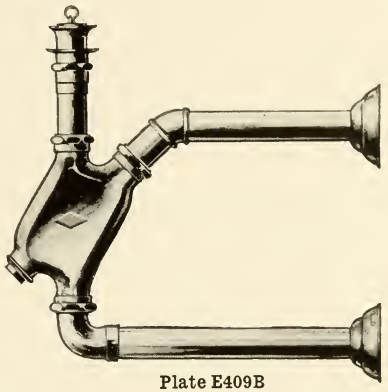


Plate E409B

Price, Plain, Nickel-plated.....each 5.00
" with Vent, Nickel-plated..... " 6.00

PLAIN

Plate E409C

WASTE TO FLOOR

Top of plug to end of waste, 30 inches.

WITH VENT

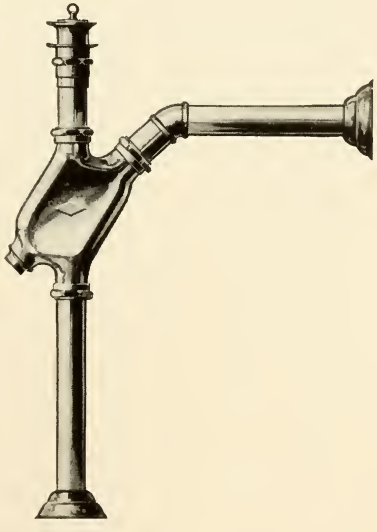


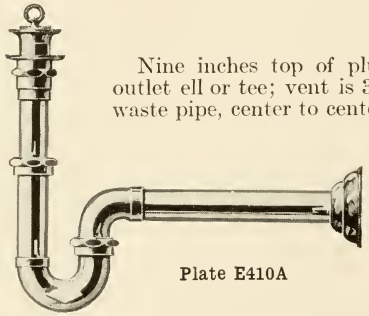
Plate E409D

Price, Plain, Nickel-plated.....each 5.00
" with Vent, Nickel-plated..... " 6.00

ADJUSTABLE BRASS TRAPS

These adjustable lavatory traps are made with cast brass patent overflow basin plug, cast brass bends, cast brass nuts and No. 19 B. & S. gauge brass tubing, nicely polished and nickel-plated. They must not be confused with the cheap traps with light tubing and all stamped brass parts. Nickel-plated spun brass flanges are sent with these traps.

PLAIN P



Nine inches top of plug to center of outlet ell or tee; vent is 3½ inches above waste pipe, center to center.

Plate E410A

P WITH VENT

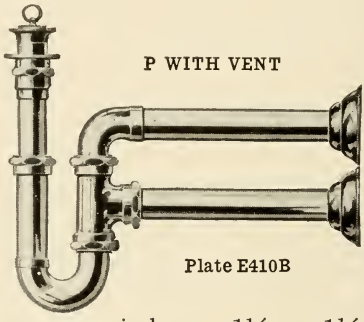
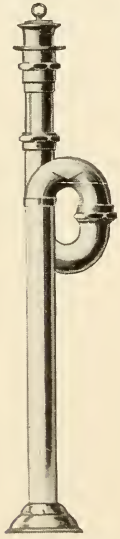


Plate E410B

Size ..... inches	1¼	1½
Price, Plain, Nickel-plated ..... each	4.15	5.20
" with Vent, Nickel-plated ..... "	6.20	8.35
Deduct if without P. O. Basin Plug ..... each	.50	
Add for Brass Cleanout Screw ..... "	.40	

PLAIN S



Length from top of plug to lower end, 28 inches.

Plate E410C

S WITH VENT

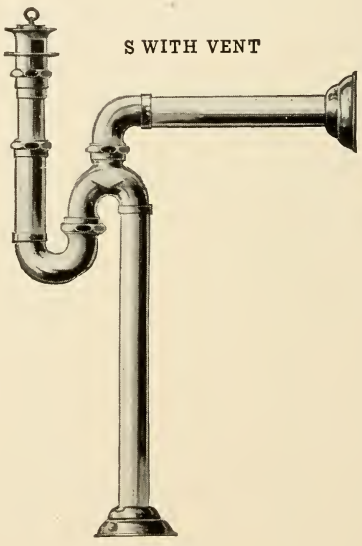


Plate E410D

Size ..... inches	1¼	1½
Price, Plain, Nickel-plated ..... each	5.25	6.55
" with Vent, Nickel-plated ..... "	6.85	9.00
Deduct if without P. O. Basin Plug ..... each	.50	
Add for Brass Cleanout Screw ..... "	.40	

NICKEL-PLATED ADJUSTABLE LAVATORY TRAPS

WITH DRAIN PLUG

These Adjustable Lavatory Traps are made with Cast Brass Patent Overflow Basin Plug, Cast Brass Bends, Cast Brass Nuts and No. 19 B. & S. Gauge Brass Tubing, nicely polished and Nickel-Plated. A Threaded Cast Brass Plug screws into the bottom of bend so that trap can easily be drained when desired.

PLAIN

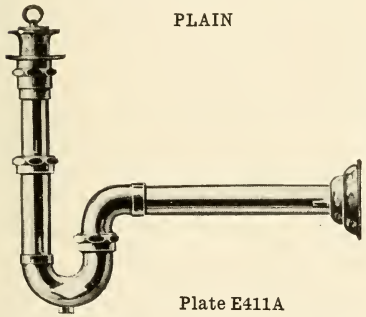


Plate E411A

P traps with waste to wall measure 9 inches top of plug to center of outlet ell; Vent is 3½ inches above waste pipe, center to center.

WITH VENT

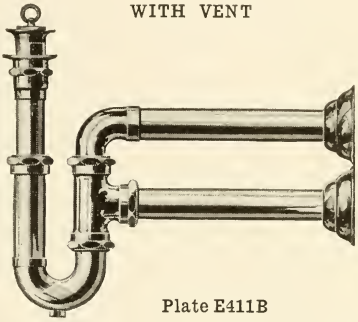


Plate E411B

Plate E411A—Nickel-Plated, Plain	each	4.35
" E411B— " " with Vent	"	6.20
Deduct if without P. O. Basin Plug	"	.50

PLAIN

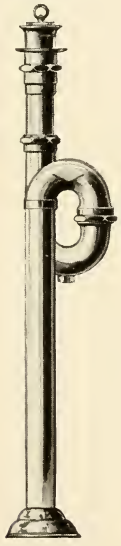


Plate E411C

Length from top of plug to lower end 28 inches.

WITH VENT

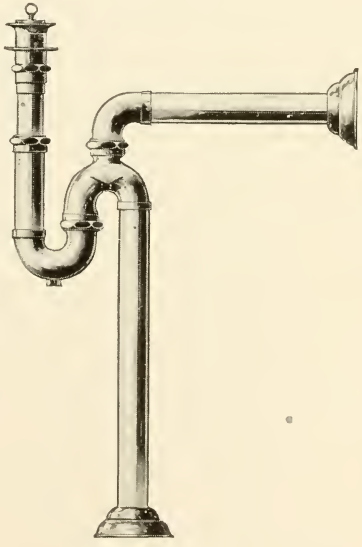


Plate E411D

Plate E411C—Nickel-Plated, Plain	each	5.45
" E411D " " with Vent	"	7.05
Deduct if without P. O. Basin Plug	"	.50

NICKEL-PLATED ADJUSTABLE LAVATORY TRAPS

WITH CAST BRASS CLEAN-OUT SCREW

These Adjustable Lavatory Traps are made with Cast Brass Patent Overflow Basin Plug, Cast Brass Bends, Cast Brass Nuts and No. 19 B. & S. Gauge Brass Tubing, nicely polished and Nickel-Plated. A Threaded Cast Brass Clean-Out Plug screws into bottom of bend.

PLAIN

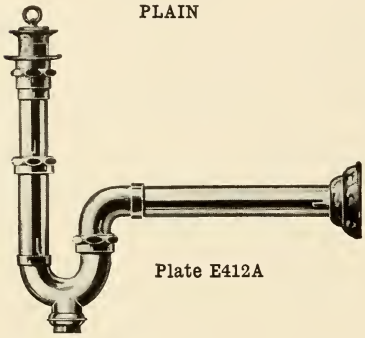


Plate E412A

P traps with waste to wall measure 9 inches top of plug to center of outlet ell; Vent is 3½ inches above waste pipe, center to center.

WITH VENT

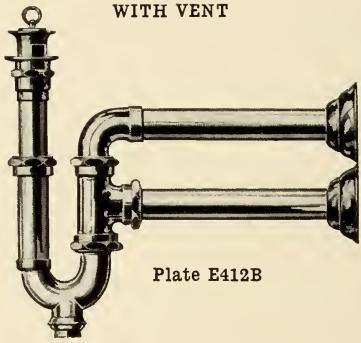


Plate E412B

Plate E412A—Nickel-Plated, Plain	each	4.55
" E412B " " with Vent	"	6.60
Deduct if without P. O. Basin Plug	"	.50

PLAIN

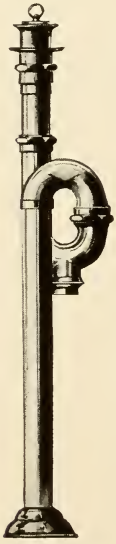


Plate E412C

Length from top of plug to lower end, 28 inches.

WITH VENT

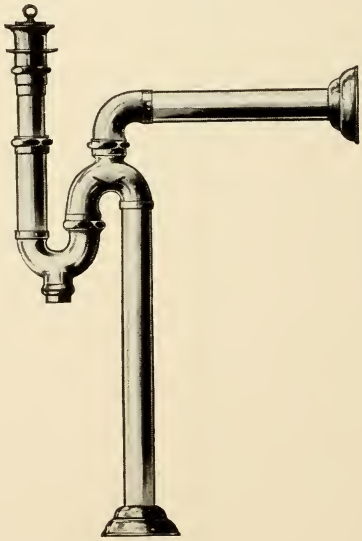


Plate E412D

Plate E412C—Nickel-Plated, Plain	each	5.65
" E412D " " with Vent	"	7.25
Deduct if without P. O. Basin Plug	"	.50

CONTINUOUS LAVATORY WASTE

The illustration below shows a continuous waste for four lavatories, with trap in the center. They are made for 2 up to 6 basins, and the trap can be located at either end or the center by so stating on the order. In ordering, be careful to state the distance between the centers of the lavatories, and where trap is to be.

Basin plugs, connections, nuts, etc., are heavy cast brass, and tubing is No. 19 B. & S. gauge. Globe trap to the floor or to the wall, or P trap to the wall, or S trap to the floor, as desired. Waste has clean-out at one or both ends, depending on location of trap.

An extra charge is made when more than 24 inches from center to center of plugs.

NICKEL-PLATED OR POLISHED BRASS

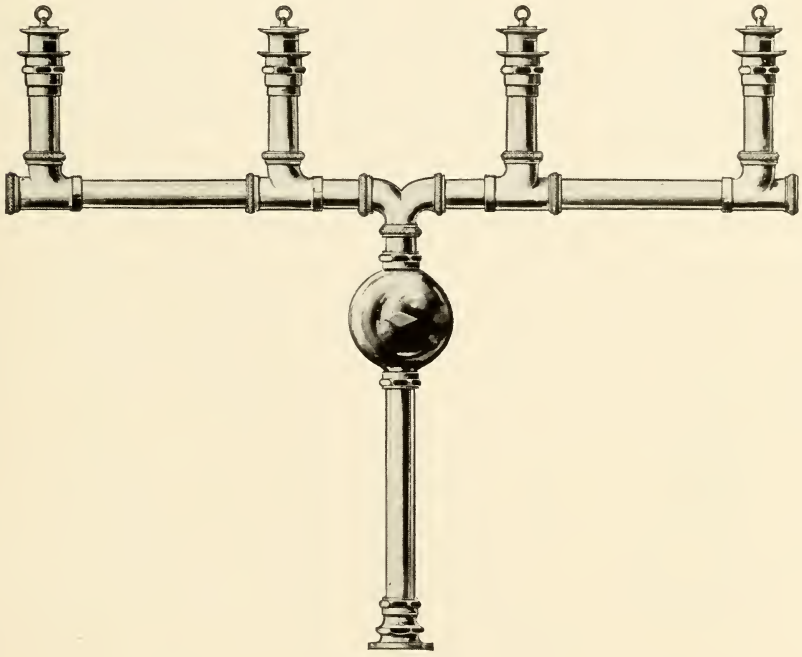


Plate E413A

Number of Basins	2	3	4	5	6
Price, with 1¼-inch Waste and Vented Trap	8.50	11.50	.....	.....	.....
" " 1½- " " " " "	9.00	12.00	15.00	18.00	21.00
" 1¼-inch Waste only without Trap	6.00	9.00	.....	.....	.....
" 1½- " " " " "	6.00	9.00	12.00	15.00	18.00
If without Vent on 1¼-inch Trap, deduct					.50
" " " " 1½- " " "					.60

In ordering state where trap is to be located, size of trap and waste, and whether trap is to waste to floor or wall.

GLOBE AIR CHAMBER LAVATORY SUPPLIES

NICKEL-PLATED

THREADED FOR ⅜-INCH PIPE SEAMLESS BRASS TUBE

TO WALL

Slip joint at the top fits the tail piece of basin cocks. They measure 11½ inches from top to center of elbow or stop, and 6 inches from center of elbow or stop to inlet end at wall.

PLAIN

Plate E414A
Price, per pair **8.25**

WITH WHEEL HANDLE STOP

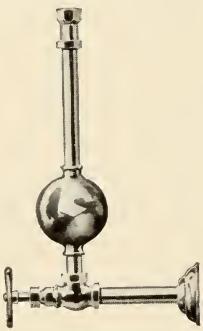


Plate E414B
Price, per pair **12.25**

WITH LOOSE KEY STOP

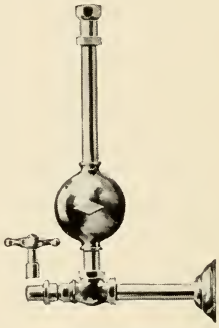


Plate E414C
Price, per pair **12.25**

TO FLOOR, 27 INCHES LONG

PLAIN

Plate E414D
Price, per pair **8.25**

WITH WHEEL HANDLE STOP

Plate E414E
Price, per pair **12.25**

WITH LOOSE KEY STOP

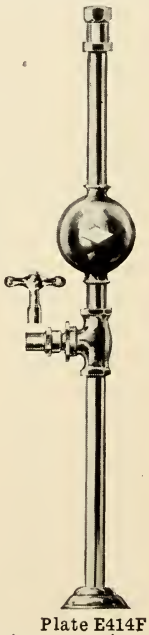


Plate E414F
Price, per pair **12.25**

Any of the above supplies can be furnished with 7/16-inch swedged top or with ⅜x¼ inch nickel-plated reducer at top, at the same price, as shown.

NICKEL-PLATED PEAR AIR CHAMBER LAVATORY SUPPLIES

THREADED FOR ⅜-INCH PIPE, SEAMLESS BRASS TUBE

These Pear Air Chamber Lavatory Supply Pipes, are large and heavy, nicely finished and nickel-plated. Slip joint at the top fits tail piece of basin cocks.

TO WALL

These measure 11½ inches top to center of elbow or stop and 6 inches from center of elbow or stop to inlet end at wall.

PLAIN

Plate E415A
Price, per pair **9.50**

WITH WHEEL HANDLE STOP

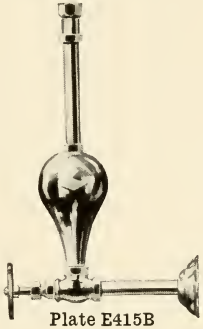


Plate E415B
Price, per pair **13.50**

WITH LOOSE KEY STOP

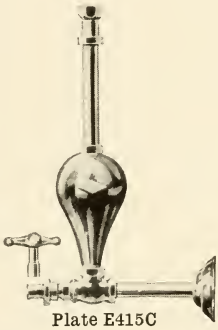


Plate E415C
Price, per pair **13.50**

TO FLOOR, 27 INCHES LONG

PLAIN

Plate E415D
Price, per pair **9.50**

WITH WHEEL HANDLE STOP

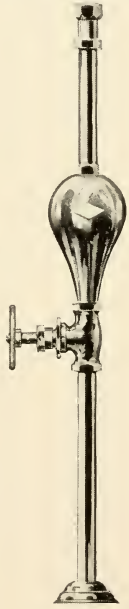


Plate E415E
Price, per pair **13.50**

WITH LOOSE KEY STOP

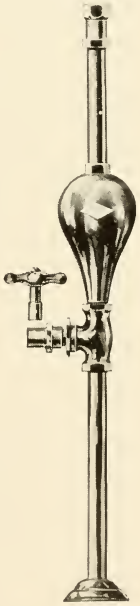


Plate E415F
Price, per pair **13.50**

Any of the above supplies can be furnished with 7/16-inch swedged top or with ⅜ x ¼ inch nickel-plated reducer at top, at the same price as shown.

LAVATORY SUPPLY PIPES

PLAIN AIR CHAMBER SEAMLESS BRASS TUBE
THREADED FOR ⅜-INCH PIPE

SUPPLIES TO WALL

These plain air chamber lavatory supplies are made of either No. 12 or No. 11 B. & S. gauge, seamless drawn, annealed brass pipe. The No. 11 gauge is full ⅜-iron pipe size. Suitable for 150 pounds working pressure. These are wall supplies taking the water from a water supply pipe in the partition or on the other side of the wall. Slip joint at the top fits tail piece of basin cocks.

The use of air chambers on supply pipes is good practice, particularly when water pressure is high, as they relieve the pipes of the hammering and pounding caused by quick closing of faucets.

Two of these supply pipes are shown with stops, which are desirable, as they permit the repair of a basin cock without shutting off the water at any other fixture.

Nickel-plated stamped brass wall flanges are always sent with these.

Measurements: From top to center of elbow or stop, 11½ inches; from center of elbow or stop to wall inlet end, 6 inches.

PLAIN

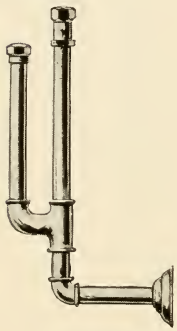


Plate E416A

WITH WHEEL HANDLE STOP

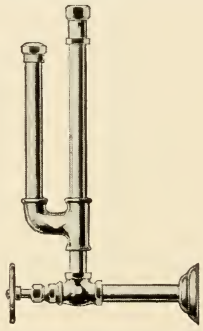


Plate E416B

WITH LOOSE KEY STOP

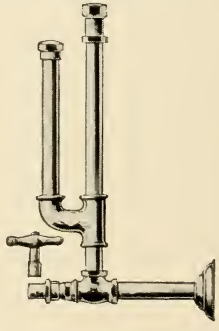


Plate E416C

Gauge (B. & S.) of Brass Pipe.....number	12	11
Price, Plain, Nickel-plated.....per pair	7.00	8.00
" with Wheel Handle Stop, Nickel-plated..... "	11.00	12.00
" with Loose Key Stop, Nickel-plated..... "	11.00	12.00

Any of the above supplies can be furnished with 7/16-inch swedged top or with ⅜x¼-inch nickel-plated reducer at top, at the same price as shown.

LAVATORY SUPPLY PIPES

PLAIN AIR CHAMBER SEAMLESS BRASS TUBE
THREADED FOR 3/8-INCH PIPE

SUPPLIES TO FLOOR

These plain air chamber lavatory supplies are made of either No. 12 or No. 11 B. & S. gauge, seamless drawn, annealed brass pipe. No. 11 gauge is full 3/8-inch iron pipe size. Suitable for working pressures up to 150 pounds. They are floor supplies, extending from avatory to floor. Slip joint at the top fits tail piece of basin cock.

Air chamber supply pipes are advisable where pressures are high, as the air chambers relieve the pipes of the hammering and pounding caused by quick closing of faucets.

Two of these supply pipes are shown with stops, which are desirable, as they permit the repair of the basin cock without shutting off the water at any other fixture.

Nickel-plated stamped brass floor flanges are always furnished with these.

Measurement: 27 inches total length, but they can be furnished longer on special order.

PLAIN

Plate E417A

WITH WHEEL HANDLE STOP

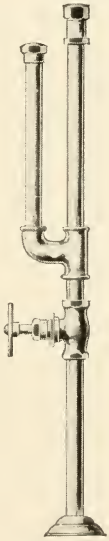


Plate E417B

WITH LOOSE KEY STOP

Plate E417C

Gauge (B. & S.) of Brass Pipe.....number	12	11
Price, Plain, Nickel-plated.....per pair	7.00	8.00
" with Wheel Handle Stop, Nickel-plated..... "	11.00	12.00
" " Loose Key Stop..... "	11.00	12.00

Any of the above supplies can be furnished with 7/16-inch swedged top or with 3/8x1/4 inch nickel-plated reducer at top, at the same price as shown.

LAVATORY SUPPLY PIPES

THREADED FOR ⅜ INCH PIPE SEAMLESS BRASS TUBE

SUPPLIES TO WALL

These lavatory supplies are without air chamber, and are made of either No. 12 or No. 11 B. & S. gauge, seamless drawn, annealed brass pipe. The No. 11 gauge is full ⅜-inch iron pipe size. Suitable for pressures up to 150 pounds, though we recommend air chamber supplies for any pressures over 35 to 40 pounds. Slip joint at the top fits tail piece of basin cocks.

These are wall supplies, taking the water from a water supply pipe in the partition or through the wall.

Two of these supply pipes are shown with compression stops, which are desirable, as they permit the repair of a basin cock without shutting off the water at any other fixture.

Nickel-plated stamped brass wall flanges are always sent with these.

Measurements: From top of supply pipe to center of elbow or stop, 11½ inches; from center of elbow or stop to wall inlet end, 6 inches. Plate E418A bent, instead of with elbow, measures 8¾ inches long by 6 inches.

PLAIN

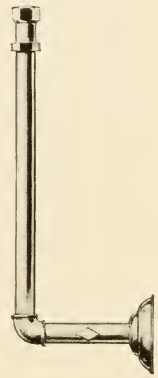


Plate E418A

WITH WHEEL HANDLE STOP

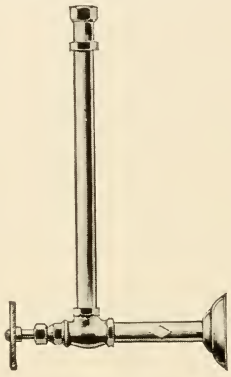


Plate E418B

WITH LOOSE KEY STOP

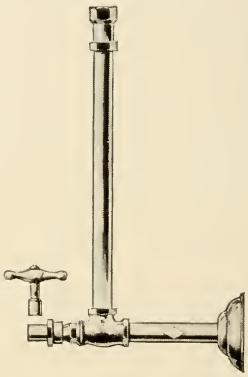


Plate E418C

Gauge (B. & S.) of Brass Pipe	number	12	11
Price, Plain, Nickel-plated	per pair	3.50	4.15
" with Wheel Handle Stop, Nickel-plated	"	7.50	8.15
" " Loose Key Stop, Nickel-plated	"	7.50	8.15

Plate E418A may also be furnished made of one piece ⅜ I. P. size, No. 12 gauge, seamless annealed pipe, without elbow, at the same price.

Any of the above supplies can be furnished with ⅜x¼-inch nickel-plated reducer at top at the same price as shown. For these supplies with 7/16-inch swedged top, see second page following.

NICKEL-PLATED LAVATORY SUPPLIES

THREADED FOR ⅜-INCH PIPE SEAMLESS BRASS TUBE

SUPPLIES TO FLOOR

These lavatory supplies are without air chamber, and are made of either No. 12 or No. 11 B. & S. Gauge, seamless drawn, annealed brass pipe. The No. 11 gauge is full ⅜-inch iron pipe size. Suitable for pressures up to 150 pounds, though we recommend air chamber supplies for pressures over 35 or 40 pounds. Slip joint at the top fits tail pieces of basin cocks.

These are floor supplies, extending from the lavatory to the floor, and are 27 inches long from top of slip joint to lower end. Longer supplies can be furnished when ordered.

Two of these supply pipes are shown with compression stops, which are desirable, as they permit the repair of a basin cock without shutting off the water at any other fixture.

Nickel-plated stamped brass floor flanges are always sent with these.

PLAIN

Plate E419A

WITH WHEEL HANDLE STOP

Plate E419B

WITH LOOSE KEY STOP

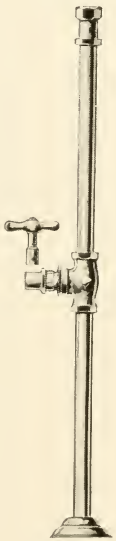


Plate E419C

Gauge, (B. & S.) of Brass Pipe	number	12	11
Price, Plain	per pair	3.50	4.15
" with Wheel Handle Stop	"	7.50	8.15
" " Loose Key Stop	"	7.50	8.15

Any of the above supplies can be furnished with ⅜x¼-inch nickel-plated reducers at top, at the same price as shown. For these supplies with 7/16-inch swedged top, see second page following.

NICKEL-PLATED LAVATORY SUPPLY PIPES

SWEDGED TOP, $\frac{7}{16}$-IN. O. D. THREADED FOR $\frac{3}{8}$-IN. PIPE

SUPPLIES TO WALL OR FLOOR

These lavatory supplies are without air chamber, and are made of No. 12 B. & S. gauge, seamless drawn, annealed, $\frac{3}{8}$-in. I. P. size, brass pipe. No. 11 B. & S. gauge can be furnished when so ordered. They are suitable for pressure up to 150 pounds, though we recommend air chamber supplies for pressures exceeding 40 or 50 pounds.

The top end of these supplies is drawn down to $\frac{7}{16}$-inch outside diameter, so that it can slip into the shank of any basin cock. This reduced size is $2\frac{1}{2}$ inches long, permitting about 2 inches adjustment. Tight slip joint connection between supply pipe and basin cock is easily made, with the bevelled rubber gasket and brass friction ring sent with each supply pipe and union nut of basin cock.

Supply pipes with compression stops are recommended, as they permit the repair of basin cocks without shutting off the water from any other fixture.

Nickel-plated stamped brass wall or floor plates are sent with these supplies.

PLAIN

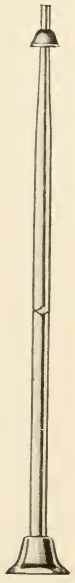


Plate E420A

PLAIN

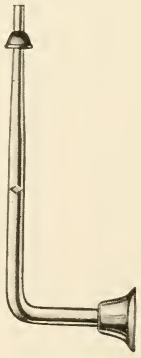


Plate E420B

WITH WHEEL HANDLE STOP

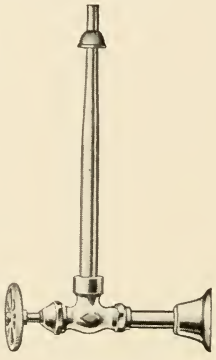


Plate E420C

WITH WHEEL HANDLE STOP

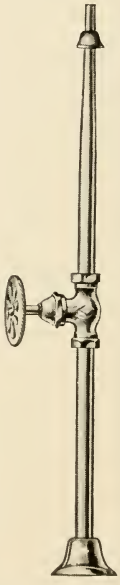


Plate E420D

SUPPLIES TO WALL

Supplies to wall measure $10\frac{1}{4}$ inches from top of supply pipe to center of bend or stop cock, and 6 inches from center of bend or stop cock to wall inlet end.

Gauge (B. & S.) of Brass Pipe.....number	12	11
Price, Plain.....per pair	3.50	4.15
" with Compression Stop..... "	7.50	8.15
" " Brass Elbow, instead of being made from a Single Piece of Brass Pipe, at an addition to list .....per pair		1.00

SUPPLIES TO FLOOR

Supplies to floor measure 30 inches from top to lower end.

Gauge (B. & S.) of Brass Pipe.....number	12	11
Price, Plain.....per pair	3.50	4.15
" with Compression Stop..... "	7.50	8.15

LAVATORY SUPPLY PIPES

INLET END WITH SLIP JOINT NUT FOR ½-INCH IRON PIPE
$\frac{9}{16}$-INCH O. D. SWEDGED TOP, $\frac{7}{16}$-INCH O. D.
SUPPLIES TO FLOOR OR WALL

These supplies are without air chamber, made of No. 16 B. & S. gauge, seamless drawn, annealed brass tubing, $\frac{9}{16}$-inch outside diameter. Suitable for pressures up to 100 pounds, though we recommend air chamber supplies for pressures exceeding 40 or 50 pounds. Nickel-plated stamped brass wall or floor plates are sent with these supplies.

Top end of these supplies is drawn down to $\frac{7}{16}$-inch outside diameter, so that it can slip into the shank of any basin cock, and this reduced size is 2½-inch long, giving about 2-inch adjustment. Inlet end of these supplies has a slip joint nut, with rubber gasket and brass friction ring, the supply entering the ½-inch iron pipe, which projects from floor or wall. Tight slip joint connections are easily made, as high-grade rubber gaskets and brass friction rings are sent for both ends of each supply pipe.

Supply pipes with slip joint compression stops are recommended, as they permit the repair of basin cocks without shutting off the water from any other fixture. Wall supply can be furnished with angle slip joint compression stop, as listed, though we do not illustrate it.

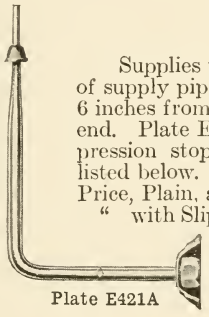


Plate E421A

TO WALL
PLATE E421A

Supplies to wall measure 10¼ inches from the top of supply pipe to center of bend or stop cock, and 6 inches from center of bend or stop cock to wall inlet end. Plate E421A can be furnished with an angle compression stop cock with slip joints at each end as listed below.

Price, Plain, as described.....per pair **2.00**
" with Slip Joint Compression Stop " **5.00**

Plate E421B

SUPPLIES TO FLOOR
PLATES E421B AND E421C

Supplies to floor measure 30 inches from top of supply pipe to lower end.

Price, Plain, Nickel-plated.....per pair **2.00**
" with Slip Joint Compression Stop, Nickel-plated
.....per pair **5.00**

Plate E421C

Plate E421D

McDONALD SLIP JOINT BASIN COCK CONNECTION
THREADED FOR ⅜-INCH PIPE TUBE IS $\frac{7}{16}$-INCH O. D.
PLATE E421D

This makes a very convenient and practical connection between ⅜-inch iron pipe projecting from the wall and the shank of the basin cock. Made of brass, nickel-plated rough. Elbow is threaded for ⅜-inch pipe, and tube is $\frac{7}{16}$-inch O. D. and will slip up into the shank of any basin cock. A tight joint is easily made between this connection and the basin cock, by using the union nut which comes with the basin cock, and the beveled rubber gasket and brass friction ring which comes with each of these connections. Suitable for any pressure. They measure 5 inches long from center of elbow to end of tubing, and ¾ inch from center of tube to end of elbow.

Price, Rough Nickel-plated.....per pair **1.00**

SLIP JOINT LAVATORY SUPPLY PIPES

NICKEL-PLATED **SLIP JOINT BOTH ENDS**

SEAMLESS DRAWN ANNEALED BRASS TUBE

These supply pipes are made in two sizes, $\frac{13}{32}$ and $\frac{1}{2}$-inch outside diameter, and are No. 16 B. and S. gauge.

Both sizes will telescope into the shank or spud of basin cocks, and have a beveled rubber gasket and brass friction ring, which with the union nut on the basin cock, easily makes a tight slip joint there.

At the other, or inlet end of the supplies, the $\frac{13}{32}$-inch O. D. supplies will telescope into a $\frac{3}{8}$-inch iron pipe at the wall or floor, while the $\frac{1}{2}$-inch O. D. supplies will telescope into a $\frac{1}{2}$-inch iron pipe. Nickel-plated slip joint nuts with rubber washer and brass friction ring make a tight joint easily. Nickel-plated stamped brass floor or wall flange are sent to cover the slip joint nuts.

Suitable for pressures up to 75 pounds.

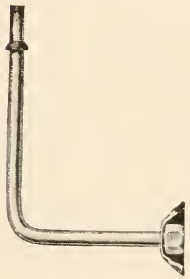


Plate E422A

TO WALL

These measure 10 inches from top to center of horizontal arm, and 6 inches from center of upright arm to end at wall. They can be furnished longer, if desired.

Outside Diameter of Brass Tube.....inches	$\frac{13}{32}$	$\frac{1}{2}$
Size I. P. Slip Joint Nut..... "	$\frac{3}{8}$	$\frac{1}{2}$
Price.....per pair	2.25	2.40

PLAIN

Plate E422B

TO FLOOR

As shown one of these supplies has an index handle compression stop, which is very convenient, as it permits the repairing of the basin cock without shutting off the water from any other fixture.

Length is 30 inches, but longer supplies can be furnished.

Outside Diameter of Brass Tube.....inches	$\frac{13}{32}$	$\frac{1}{2}$
Size of Iron Pipe Slip Joint Nut..... "	$\frac{3}{8}$	$\frac{1}{2}$
Price, Plain.....per pair	2.65	2.80
" with Indexed Handle Stop..... "	7.15	7.30

With wheel handle stop, same price.

WITH STOP, INDEXED HANDLE

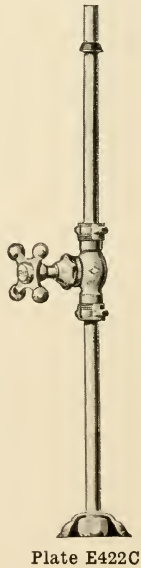


Plate E422C

SELF-CLOSING BIBBS

FOR IRON PIPE

BOSTON

WITH SHOULDER

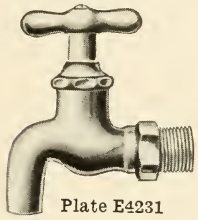


Plate E4231

S. O. T

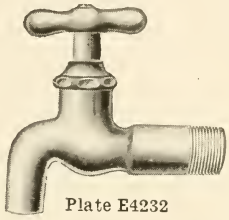


Plate E4232

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, with Shoulder, Finished .... per dozen	29.40	30.60	37.20	47.10	79.20
" " " Nickel-plated "	35.40	36.60	43.20	55.20	89.40
" S. O. T., Finished ..... "	31.80	33.00	40.20	51.60	86.40
" " Nickel-plated ..... "	37.80	39.00	46.20	59.40	96.60
Add for Hexagon on Shank ..... "	1.80	1.80	1.80	1.80	3.00

DOHERTY

WITH SHOULDER

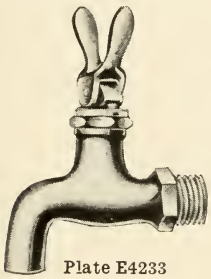


Plate E4233

S. O. T.

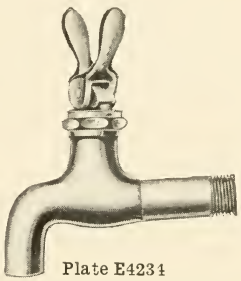


Plate E4234

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, with Shoulder, Finished .... per dozen	34.20	35.40	42.00	52.20	84.00
" " " Nickel-plated "	40.20	41.40	48.00	60.00	94.20
" S. O. T., Finished ..... "	36.60	37.80	45.00	56.40	91.20
" " Nickel-plated ..... "	42.60	43.80	51.00	64.20	101.40
Add for Hexagon on Shank ..... "	1.80	1.80	1.80	1.80	3.00

TELEGRAPH

WITH SHOULDER

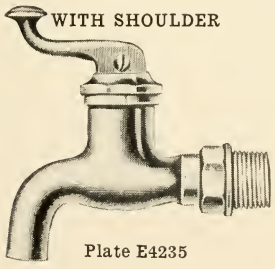


Plate E4235

S. O. T.

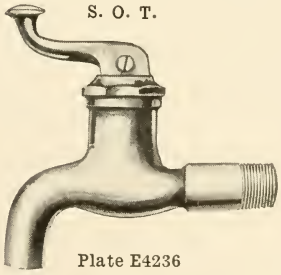


Plate E4236

Size ..... inches	3/8	1/2	5/8	3/4	1
Price, with Shoulder, Finished .... per dozen	24.60	25.80	32.40	42.60	74.40
" " " Nickel-plated "	30.60	31.80	38.40	50.40	84.60
" S. O. T., Finished ..... "	27.00	28.20	35.40	46.80	81.60
" " Nickel-plated ..... "	33.00	34.20	41.40	54.60	91.80

SELF-CLOSING BASIN COCKS

No. 3
ROUNDSPOUT

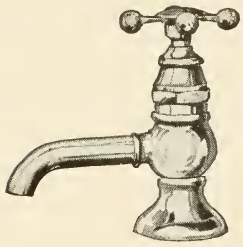


Plate E4241

No. 4
FLATSPOUT

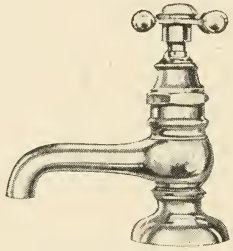


Plate E4242

Price, No. 3 Nickel-plated, T Handle				per dozen	46.00
" " 3 " "	with N. P. Web or Crown Handle			"	48.00
" " 3 " "	" China Index Web or Crown Handle			"	56.00
" " 4 " "	T Handle			"	46.00
" " 4 " "	with N. P. Web or Crown Handle			"	48.00
" " 4 " "	" China Index Web or Crown Handle			"	56.00

ELITA

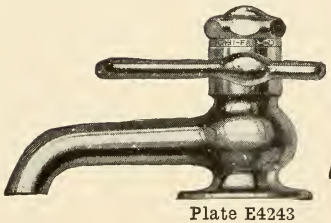


Plate E4243

AMAZON

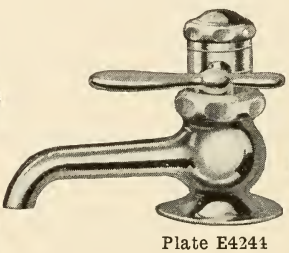


Plate E4244

NEPTUNE

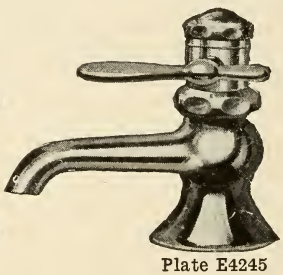


Plate E4245

Price, Nickel-plated Elita Basin Cocks with Nickel-plated Handle	per pair	7.00
If with China Indexed Top, add	"	.30
" " " Handle, add	"	.80
Price, Nickel-plated Amazon Self-closing Basin Cocks with Nickel-plated Handle	per pair	9.00
If with China Indexed Top, add	"	.30
" " " Handle, add	"	.80
Price, Nickel-plated Neptune Self-closing Basin Cock with Nickel-plated Handle	per pair	9.80
If with China Indexed Top, add	"	.30
" " " Handle, add	"	.80

BOSTON AND DOHERTY SELF-CLOSING WORK

FOR IRON PIPE

STOPS

BOSTON

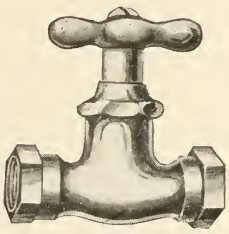


Plate E4251

DOHERTY

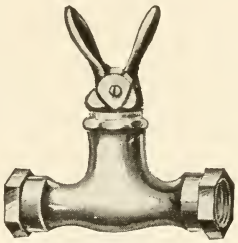


Plate E4252

Size.....inches	3/8	1/2	5/8	3/4	1
Price, Boston Self-Closing Stops, Finished.....per dozen	29.40	30.60	37.20	47.40	79.20
" " " " " Nickel-plated..... "	35.40	36.60	43.20	55.20	89.40
" Doherty " " " Finished..... "	34.20	35.40	42.00	52.20	84.00
" " " " " Nickel-plated..... "	40.20	41.40	48.00	60.00	94.20

PANTRY COCKS

BOSTON

Plate E4253

DOHERTY

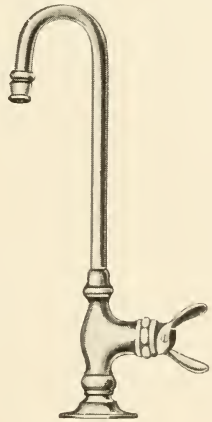


Plate E4254

LEVER HANDLE SHOWER COCK

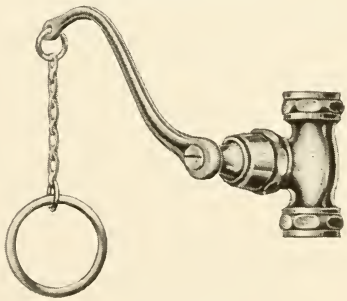


Plate E4255

PANTRY COCKS

Price, Boston, Finished or Nickel-plated .....per dozen		64.80
" Doherty, " " " " " ..... "		69.60
Add for Hose End	"	3.60

LEVER HANDLE SHOWER COCKS

Size.....inches	1/2	5/8	3/4	1
Price, Finished.....per dozen	52.80	59.40	76.20	115.20
" Nickel-plated..... "	58.80	65.40	84.00	125.40

FLOOR FLANGES

NICKEL-PLATED BRASS

PLAIN

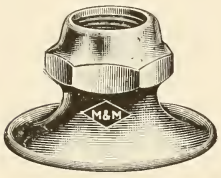


Plate E4261

WITH SLIP JOINT

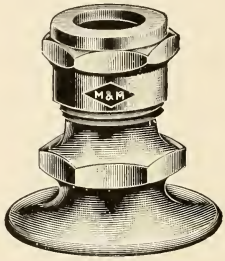


Plate E4262

PLAIN FLOOR FLANGE

Tapped for iron pipe at both top and bottom. They support the water supply pipes below the floor and prevent the lavatory supply pipes from pulling out of the basin cocks.

Size Lower Tapping.....inches	⅜	½	½	
" Upper " ..... "	⅜	⅜	½	
Nickel-plated.....each	**.65**	**.65**	**.65**	

FLOOR FLANGE WITH SLIP JOINT

This is a very popular article of real merit. It is used to connect iron pipe with nickel-plated bath and lavatory supply pipes. It is tapped for iron pipe at the bottom inlet, and has slip joint nut with rubber gasket to fit various sizes of brass pipe, iron pipe size. It supports the water supply pipe below the floor, and the slip joint at the top avoids the necessity for cutting threads on the supply pipes.

Always specify stock letter in ordering to avoid mistakes.

Size Tapping, Iron Pipe.....inches	⅜	⅜	½	½	½	¾	¾
" Slip Joint, Iron Pipe.... "	¼	⅜	¼	⅜	½	⅜	½
Price, Nickel-plated.....each	**.85**	**.90**	**1.00**	**1.05**	**1.15**	**1.50**	**1.50**
Stock Letter to Show Size.....	A	B	C	D	E	F	G

These are also made to fit other sizes of outside diameter brass tubing as listed below.

Size Tapping, Iron Pipe inches	⅜	⅜	⅜	½	½	½	½	½
" Slip Joint, O. D. Tubing.....inches	7/16	½	⅝	7/16	½	⅝	¾	13/16
Price, Nickel-plated.....each	**.85**	**.85**	**.90**	**1.00**	**1.00**	**1.05**	**1.15**	**1.15**
Stock Letter to Show Size...	H	J	K	L	M	N	O	P

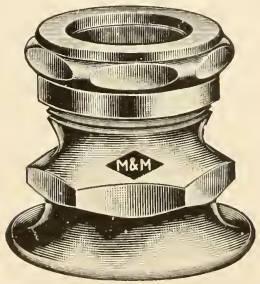


Plate E4263

FLOOR FLANGE WITH SLIP JOINT

This floor flange is very convenient and is used to connect iron pipe with nickel-plated brass waste and vent pipes. Tapped at bottom for iron pipe and has slip joint top to fit brass tubes of various outside diameters. Always specify stock letter in ordering to avoid mistakes.

Size Tapping, Iron Pipe...inches	1	1	1¼	1¼
" Slip Joint, O.D. Tubing.ins.	1⅛	1¼	1⅛	1¼
Price, Nickel-plated.....each	**1.80**	**1.80**	**2.00**	**2.00**
Stock Letter to Show Size.....	A	B	C	D

Size Tapping, Iron Pipe...inches	1¼	1½	1½	1½
" Slip Joint, O.D. Tubing, ins.	1⅜	1¼	1⅜	1½
Price, Nickel-plated.....each	**2.00**	**2.35**	**2.35**	**2.35**
Stock Letter to Show Size.....	E	F	G	H

SLIP JOINT CONNECTIONS

NICKEL-PLATED BRASS

These slip joint connections have high grade rubber gaskets and brass friction rings, so that tight joints are easily made. They used to connect brass tubing or pipe, such as basin, bath or closet supply pipes to iron pipe.

STRAIGHT

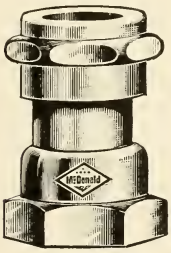


Plate E4271

ELBOW

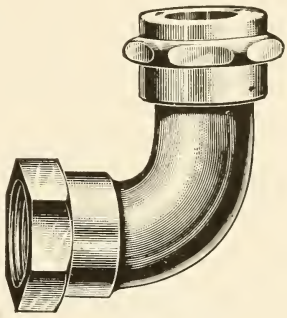


Plate E4272

STRAIGHT

Threaded at bottom for iron pipe with slip joint to fit iron pipe sizes. Specify size wanted by plate number and stock letter.

Stock Letter	Tapped for Iron Pipe, Ins.	Size Hole in Nut, Ins.	Size Iron Pipe Slip Joint Fits, Ins.	Price per Doz.
A	3/8	27/64	1/8	6.60
B	3/8	9/16	1/4	6.60
C	3/8	11/16	3/8	7.20
D	1/2	9/16	1/4	8.40
E	1/2	11/16	3/8	9.00
F	1/2	27/32	1/2	10.20
G	3/4	27/32	1/2	13.80

We also furnish them threaded for iron pipe with slip joint to fit brass tubing of various outside diameter.

Stock Letter	Tapped for Iron Pipe Inches	Outside Diam. of Tube Slip Joint Fits Inches	Price per Doz.	Stock Letter	Tapped for Iron Pipe Inches	Outside Diam. of Tube Slip Joint Fits Inches	Price per Doz.
H	3/8	7/16	6.60	O	1/2	1/2	8.40
J	3/8	1/2	6.60	P	1/2	9/16	8.40
K	3/8	9/16	6.60	R	1/2	5/8	9.00
L	3/8	5/8	7.20	S	1/2	3/4	10.20
M	1/2	3/8	8.40	T	1/2	13/16	10.20
N	1/2	7/16	8.40	U	3/4	3/4	13.80

ELBOW

These slip joint elbows are threaded for iron pipe on the short end and have slip joint on the long end. They measure 1½ inches, center of elbow to end.

Tapped for Iron Pipe Inches	Outside Diam. of Tube Slip Joint Fits Inches	Price per Doz.	Tapped Iron Pipe Inches	Outside Diam. of Tube Slip Joint Fits Inches	Price per Doz.
3/8	3/8	9.60	1/2	7/16	10.20
3/8	7/16	9.60	1/2	1/2	10.20
3/8	1/2	9.60	1/2	9/16	10.80

VENT FITTINGS

WITH SLIP JOINT NUTS

VENT TEES

IRON PIPE VENT
LEAD PIPE WASTE

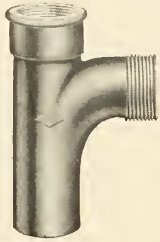


Plate E4281

IRON PIPE VENT
IRON PIPE WASTE

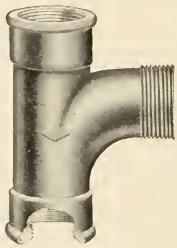


Plate E4282

¼-inch I. P., 1¼-inch L. P., 1¼-inch Slip Joint	each	.70
½ " " 1½ " " 1½ " " "	"	.75
¼ " " 1¼ " I. P., 1¼ " " "	"	.85
½ " " 1½ " " 1½ " " "	"	.90

VENT CROSSES

IRON PIPE VENT
LEAD PIPE WASTE

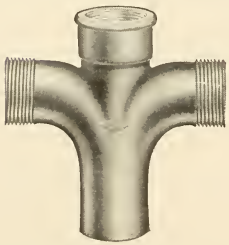


Plate E4283

IRON PIPE VENT
IRON PIPE WASTE

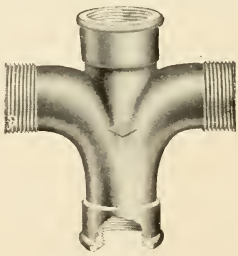


Plate E4284

1¼-inch I. P., 1¼-inch L. P., 1¼-inch Slip Joint	each	1.40
1½ " " 1½ " " 1¼ " " "	"	1.45
1½ " " 1½ " " 1½ " " "	"	1.55
1¼ " " 1¼ " I. P., 1¼ " " "	"	1.50
1½ " " 1½ " " 1¼ " " "	"	1.55
1½ " " 1½ " " 1½ " " "	"	1.65

Above price includes N. P. slip joint nuts, with rubber washer and friction ring.

SLIP JOINTS

NICKEL PLATED BRASS

IRON PIPE MALE

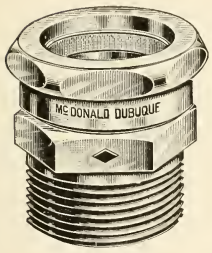


Plate E4291

These are used to connect the waste or vent of brass traps to iron pipe, being threaded male iron pipe at one end, and having a slip joint with rubber gasket and brass friction ring at the other end. They have hexagon nipples, which make them easy to install. Specify size wanted by plate number and stock letter to avoid error.

Stock Letter to Indicate Size	A	B	C	D	E	F
Size, Iron Pipe .....inches	1¼	1¼	1¼	1½	1½	1½
" O. D. of Brass Tube.. "	1⅛	1¼	1⅜	1¼	1⅜	1½
Price, Nickel-plated....each	1.00	1.00	1.00	1.30	1.30	1.30
" with Rough Nut. "	.85	.85	.85	1.15	1.15	1.15

SLIP JOINT NUTS—NICKEL PLATED BRASS

FOR IRON OR BRASS PIPE

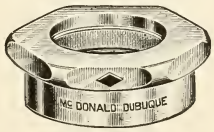


Plate E4292

FOR O. D TUBING

Plate E4293

FOR IRON PIPE SIZES

These nuts are made of cast brass, are tapped for iron pipe and have rubber slip joint washers and brass friction rings, and are used for making connections between iron pipe and brass pipe or tubing.

Specify size wanted by plate number and stock letter.

Stock Letter	Tapped for Iron Pipe Inches	Size Hole in Nut Inches	Size Iron Pipe Slip Joint Fits Inches	Rough per Doz.	Finished per Doz.
A	⅜	27/64	⅛	1.80	2.40
B	½	27/64	⅛	2.40	3.00
C	½	9/16	¼	2.40	3.00
D	¾	11/16	⅜	3.00	4.20
E	¾	27/32	½	3.00	4.20
F	1	27/32	½	4.20	5.40

FOR O. D. TUBING

Stock Letter	Tapped for Iron Pipe Inches	Outside Diameter of Tube Slips Joint Fits Inches	Rough per Doz.	Finished per Doz.	Stock Letter	Tapped for Iron Pipe Inches	Outside Diameter of Tube Slips Joint Fits Inches	Rough per Doz.	Finished per Doz.
G	⅜	⅜	1.80	2.40	Q	¾	¾	3.00	4.20
H	⅜	7/16	1.80	2.40	R	1	1	4.20	5.40
I	⅜	½	1.80	2.40	S	1¼	1¼	4.80	6.00
J	½	⅜	2.40	3.00	T	1¼	1⅜	4.80	6.00
K	½	7/16	2.40	3.00	U	1½	1¼	6.00	7.20
L	½	½	2.40	3.00	V	1½	1⅜	6.00	7.20
M	½	9/16	2.40	3.00	W	1½	1½	6.00	7.20
N	¾	½	3.00	4.20	X	2	1⅜	8.40	9.60
O	¾	9/16	3.00	4.20	Y	2	1½	8.40	9.60
P	¾	⅝	3.00	4.20	Z	2	2	8.40	9.60

SLIP JOINT NIPPLES

NICKEL-PLATED BRASS

These nipples have a cast brass male thread with nickel-plated brass tube, and are used to connect iron pipe with slip joint ends of waste fixtures or fittings. They are regularly sent 4 inches long, end to end, but can be furnished in longer lengths when ordered. Always specify stock letter in ordering, to avoid error in size.

MALE IRON PIPE

Plate E4301

Size, Iron Pipe.....inches	1¼	1¼	1½	1½	1½
" O. D. of Brass Tube..... "	1¼	1⅜	1¼	1⅜	1½
Price, Nickel-plated.....each	.70	.70	.85	.85	.85
Stock Letter to Indicate Size.....	A	B	C	D	E

FEMALE, IRON PIPE, WITH FLANGE

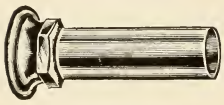


Plate E4302

These nipples have a cast brass flange, tapped for iron pipe with nickel-plated brass tube, and are used to connect iron pipe to slip joint ends of waste fixtures. They are regularly sent 3½ inches long from end to end, but can be furnished in longer lengths when so ordered. Always specify stock letter in ordering, to avoid error in size.

Size, Iron Pipe.....inches	1¼	1¼	1¼	1½	1½	1½
" O. D. of Brass Tube..... "	1¼	1⅜	1½	1¼	1⅜	1½
Price, Nickel-plated.....each	**1.00**	**1.00**	**1.10**	**1.15**	**1.15**	**1.25**
Stock Letter to Indicate Size.....	F	G	H	J	K	L

These are tapped for iron pipe, and the smooth end slips into shank or spud of basin cock, and rubber slip joint washer is sent with each one. The union nut on basin cock is used with these.

Size, Iron Pipe Tapping .....inches	¼	⅜	½
Price, Nickel-plated .....per dozen	**8.40**	**8.40**	**9.00**

FOR BASIN COCKS

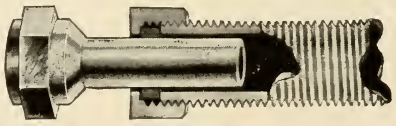


Plate E4303

Plate E4304

BASIN COCK COUPLING

FOR IRON PIPE WITH UNION

The union nut is tapped for ½-inch pipe and fits the shank of the basin cock. The ferrule is threaded for ¼-inch iron pipe.

Price, Nickel-plated, Rough.....per dozen **3.60**

SOLDER OR TRAP BUSHINGS

CAST BRASS IRON PIPE—MALE

SOLDER JOINT FOR LEAD TRAPS AND PIPE

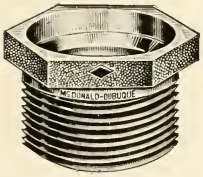


Plate E4311

SOLDER JOINT FOR BRASS TRAPS AND TUBE

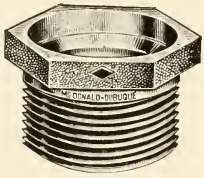


Plate E4312

FINE THREAD FOR BRASS TRAPS AND TUBE

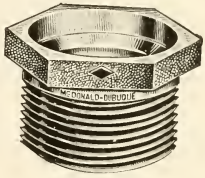


Plate E4313

These bushings are threaded male for iron pipe and the lead or brass tube is soldered in them, or in the fine thread bushings the brass tube is screwed into them. Specify them by plate number and stock letter to avoid error, and state if machined brass or nickel-plated are wanted.

SOLDER JOINT FOR LEAD TRAPS AND PIPE

Size, Iron Pipe Thread, Outside.....inches	1¼	1½	1½	2	2
" Lead Trap or Pipe to Solder, Inside... "	1¼	1¼	1½	1½	2
Price, Machined Brass.....each	.30	.40	.40	.60	.60
Stock Letter Indicates Size.....	A	B	C	D	E

SOLDER JOINT FOR BRASS TRAPS AND TUBE

Size, I. P. Thread, Outside.....inches	1¼	1¼	1¼	1½	1½	1½	2	2
" O. D. Brass Tube, Inside..... "	1⅛	1¼	1⅜	1¼	1⅜	1½	1½	2
Price, Machined Brass.....each	.30	.30	.30	.40	.40	.40	.60	.60
" Nickel-plated Brass..... "	.35	.35	.35	.45	.45	.45	.70	.70
Stock Letter Indicates Size.....	F	G	H	J	K	L	M	N

FINE THREAD JOINT FOR BRASS TRAPS AND TUBE

Size, I. P. Thread, Outside.....inches	1¼	1¼	1¼	1½	1½	1½	2	2
" Fine Thread on O. D. Tube.... "	1⅛	1¼	1⅜	1¼	1⅜	1½	1½	2
Price, Machined Brass.....each	.32	.32	.32	.42	.42	.42	.75	.75
" Nickel-plated Brass..... "	.37	.37	.37	.48	.48	.48	.80	.80
Stock Letter Indicates Size.....	O	P	R	S	T	U	V	W

UNION FERRULES

STRAIGHT

Plate E4314

EIGHTH BEND

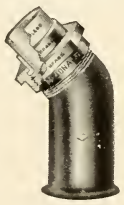


Plate E4315

UNION

Plate E4316

Straight soil pipe union ferrule for connecting soil pipe to lead pipe.

Size.....	2x1¼	2x1½
Price, Iron Body with Brass Nut and Collar.....each	.45	.55
" All Brass..... "	.65	.75

Eighth bend union ferrules for connecting soil pipe to lead pipe.

Size.....inches	2x1¼	2x1½
Price, Iron Body with Brass Nut and Collar.....each	.55	.65
" All Brass..... "	.85	.95

Unions for connecting wrought iron pipe to lead pipe.

Size.....inches	2x1¼	2x1½
Price, Iron Body with Brass Nut and Collar.....each	.45	.55
" All Brass..... "	.65	.75

SOLDERING NIPPLES AND UNIONS

DIAMOND

EXTRA HEAVY RED METAL EXTRA LONG

Diamond soldering nipples and unions are made of a high-grade red brass, are heavy, long and well finished. There are none better on the market. Carefully tested.

DIAMOND SOLDERING NIPPLES

MALE

Plate E4321

FEMALE

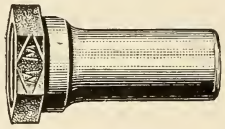


Plate E4322

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Male, Length..... "	2 11/16	2 15/16	3 1/16	3 5/16	3 1/2	3 1/2	3 7/8
" Weight, ounces....per dozen	28	40	56	82	132	152	210
" Price..... "	**3.60**	**4.20**	**6.00**	**8.40**	**10.80**	**15.00**	**21.00**
Female, Length.....inches	2 1/2	2 3/4	2 3/4	3 1/8	3 7/16	3 1/2	3 1/2
" Weight, ounces..per dozen	30	48	58	90	165	224	252
" Price..... "	**3.60**	**4.20**	**6.00**	**8.40**	**10.80**	**15.00**	**21.00**

DIAMOND SOLDERING UNIONS

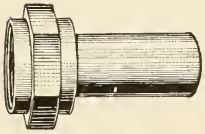


Plate E4323

Size.....inches	3/8	1/2	3/4	1
Price.....per dozen	**4.80**	**6.00**	**7.80**	**10.20**
Size.....inches	1 1/4	1 1/2	2	.....
Price.....per dozen	**13.20**	**15.00**	**21.00**	.....

STANDARD

Our standard soldering nipples and unions are lar ge and heavy, and of good length carefully machined and tested.

SOLDERING NIPPLES

MALE

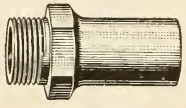


Plate E4324

FEMALE

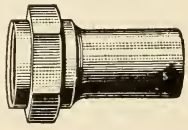


Plate E4325

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Male, Length..... "	2 1/4	2 1/2	2 3/4	3	3 1/4	3 3/8	3 5/8
" Weight, ounces....per dozen	19	30	41	73	100	145	189
" Price..... "	**3.60**	**4.20**	**6.00**	**8.40**	**10.80**	**15.00**	**21.00**
Female, Length.....inches	2	2 1/2	2 5/16	2 11/16	3	3 1/4	3 1/2
" Weight, ounces..per dozen	21	35	52	75	93	140	177
" Price..... "	**3.60**	**4.20**	**6.00**	**8.40**	**10.80**	**15.00**	**21.00**

SOLDERING UNIONS

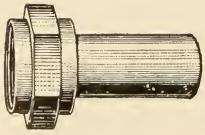


Plate E4326

Size.....inches	3/8	1/2	3/4	1
Price.....per dozen	**4.80**	**6.00**	**7.80**	**10.20**
Size.....inches	1 1/4	1 1/2	2	.....
Price.....per dozen	**13.20**	**15.00**	**21.00**	.....

BRASS RANGE BOILER COUPLINGS

LEAD PIPE

STRAIGHT

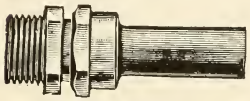


Plate E4331

BENT

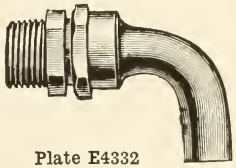


Plate E4332

		Plain Face	Ground Face
Size	inches	3/4	3/4
Price, Straight	per dozen	12.60	13.80
" Bent	"	15.00	16.20

IRON PIPE

STRAIGHT

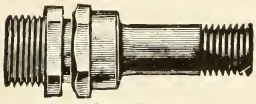


Plate E4333

BENT

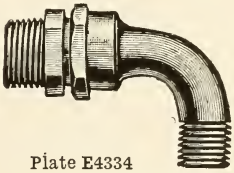


Plate E4334

		Plain Face	Ground Face
Size	inches	3/4	3/4
Price, Straight	per dozen	14.40	15.60
" Bent	"	16.80	18.00

BRASS WATER BACK COUPLINGS

LEAD PIPE
FEMALE THREAD

STRAIGHT

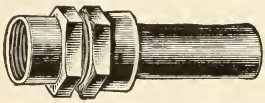


Plate E4335

BENT

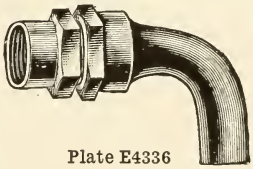


Plate E4336

		Plain Face	Ground Face
Size	inches	3/4	3/4
Price, Straight	per dozen	12.60	13.80
" Bent	"	15.00	16.20

LEAD PIPE
MALE THREAD

STRAIGHT

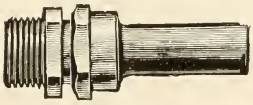


Plate E4337

BENT

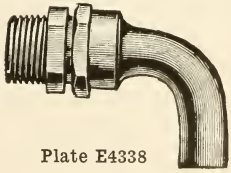


Plate E4338

		Plain Face	Ground Face
Size	inches	3/4	3/4
Price, Straight	per dozen	12.60	13.80
" Bent	"	15.00	16.20

BRASS FERRULES

PLAIN

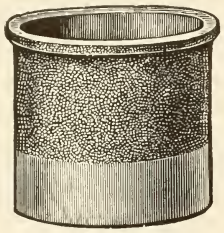


Plate E4341

WITH TRAP SCREW

Plate E4342

PLAIN BRASS FERRULES

These are made of cast brass, and are to be wiped or soldered on to lead waste pipes and calked into hubs of soil pipe. Nice, clean brass casings, well finished and tested. They are made in different lengths and weights, as listed below.

Size, Inside Diameter ..... inches	2x1½	2	3	4
Length ..... "	3½	3	3⅜	3⅝
Approximate Weight, each ..... ounces	11	10	20	27
Price, Standard ..... per dozen	**9.00**	**9.00**	**15.60**	**18.60**

Size, Inside Diameter ..... inches	2x1½	2	2	4	4	4⅛
Length ..... "	4	4	4½	4	4½	4
Approximate Weight, each ..... ounces	13	16	25	35	38	44
Price, Extra Heavy ..... per dozen	**11.40**	**13.20**	**15.60**	**27.60**	**27.60**	**28.80**

The 4⅛-inch inside diameter ferrule, 4 inches long, telescopes over the outside of lead waste pipe or ferrule.

BRASS TRAP SCREW FERRULES

These are good heavy ferrules, well made in every respect, and will stand hard calking into soil pipe.

Size ..... inches	2	3	4	5	6
Length ..... "	3⅝	3	3½	3½	3½
Weight, each ..... pounds	1⅛	1⅝	3	3 13/16	5
Price, Brass ..... per dozen	**16.20**	**26.40**	**34.80**	**147.00**	**168.00**

BRASS TRAP SCREWS

CAST BRASS FINISHED OR NICKEL-PLATED

Plate E4343

Size, Diameter ..... inches	1¼	1½	2	3	4
Price, Finished Brass ..... per dozen	**3.60**	**4.20**	**7.20**	**15.00**	**21.00**
" Nickel-plated ..... "	**6.60**	**7.20**	**12.00**	**21.00**	**27.00**

IRON FERRULES

PLAIN

Plate E4351

THREADED

Plate E4352

PLAIN

These are cast iron to drive inside of 2-inch or 4-inch lead waste pipe or lead bends so that the plumber thus makes his own combination lead ferrules or bends for caulking into soil pipe.

Size	inches	2	4
Length	"	3	3¼
Price	per dozen	**1.50**	**2.00**

THREADED

These are cast iron threaded on inside one end and other end is caulked into soil pipe.

Size to Caulk	inches	2	2
" I. P. Thread	"	1¼	1½
Price	per dozen	**3.60**	**3.60**

IRON FERRULES WITH TRAP SCREW

These are made of heavy cast iron, with either brass trap screws or with iron trap screw with a brass thread in it. They are to calk into hub of soil pipe.

WITH BRASS TRAP SCREW

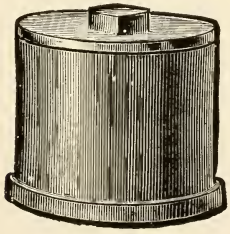


Plate E4353

WITH IRON TRAP SCREW
WITH BRASS THREAD

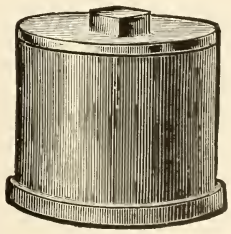


Plate E4354

Size to Caulk ..... inches	2	3	4	5	6
Price, with Brass Trap Screw per doz.	**10.80**	**16.80**	**21.00**	**88.20**	**100.80**
" " Iron Trap Screw, Brass Thread ..... per doz.	**10.80**	**16.80**	**21.00**	....	.....

COCK HOLE COVERS, BATH PLUGS, ETC.

COCK HOLE COVER

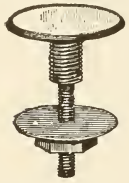


Plate E4361

BATH PLUG

Plate E4362

BATH OVERFLOW

Plate E4363

COCK HOLE COVERS

These are made in 3 sizes—for lavatory cock hole, for sink back cock hole, and for overflow hole of bath tub. Made of brass, polished and nickel-plated.

Price, for Lavatory	per doz.	4.20
" " Bath and Sink Back	"	6.60
" " " Tub Overflow	"	12.00

COMMON BATH PLUGS AND OVERFLOWS

	CAST BRASS NICKEL-PLATED	
Size	inches	1½
Price, Plug with Rubber Stopper and Union	each	1.00
" Overflow with Strainer and Union	"	1.00

CAST BRASS NAME PLATE

Plate E4364

Size	inches	4½x2
Price, Finished or Nickel-plated	each	2.50

Furnished with any name and address desired.

PLUGS WITH RUBBER STOPPERS

BASIN PLUG
COMMON OVERFLOW

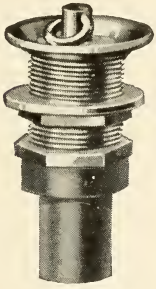


Plate E4371

BASIN PLUG
PATENT OVERFLOW

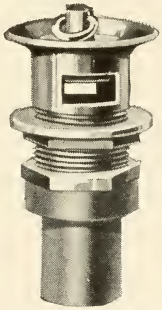


Plate E4372

WASH TRAY PLUG

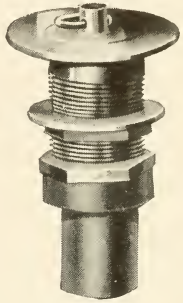


Plate E4373

BASIN PLUGS

Size.....inches	1	1¼
Price, Common Overflow, Finished.....per dozen	9.36	12.96
" " " Nickel-plated..... "	10.80	14.40
" Patent " Finished..... "	10.80	14.40
" " " Nickel-plated..... "	12.96	16.56

WASH TRAY PLUGS

Size.....inches	1	1¼	1½	2
Price, Finished.....per dozen	23.76	25.92	32.40	50.40
" Nickel-plated..... "	25.92	29.52	36.00	57.60

RUBBER STOPPERS

SINK OR BATH PLUG

Plate E4374

WASH TRAY PLUG

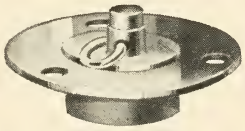


Plate E4375

REGULAR

Plate E4376

SPECIAL

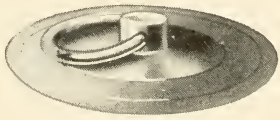


Plate E4377

SINK OR BATH PLUGS

Size.....inches	¾	1	1¼	1½	2	2½	3	4
Price, Finished.....per dozen	2.88	2.88	3.60	5.04	10.08	18.00	21.60	43.20
" Nickel-plated.. "	3.60	3.60	4.32	5.76	11.52	20.88	25.20	50.40

WASH TRAY PLUGS

Size.....inches	1¼	1½	2	2½	3	4
Price, Finished.....per dozen	7.20	8.64	12.96	21.60	27.36	54.00
" Nickel-plated..... "	9.36	10.80	16.56	25.20	32.40	64.80

REGULAR RUBBER STOPPERS

Size.....inches	¾	⅞	1	1⅛	1¼	1½	2	2½	3
Price.....per dozen	1.44	1.44	1.44	1.56	1.80	2.28	3.24	4.20	5.40

SPECIAL RUBBER STOPPERS

Price, Basin Size.....per dozen 4.00 Price, Bath Size.....per dozen 6.00

STRAINERS

ROUND

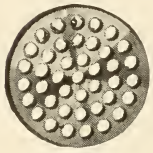


Plate E4381

CONVEX

Plate E4382

FANCY

Plate E4383

HEAVY BAR

Plate E4384

Size.....inches	¾	1	1¼	1½	2	2½	3	4	5	6
Price, Finished, Round, per doz.	1.20	1.20	1.20	1.80	1.80	2.40	3.00	4.80	9.00	12.00
" N. P., " "	1.80	1.80	1.80	2.40	3.00	4.20	6.00	8.40	13.00	18.00
" Finished, Convex, "	1.80	1.80	1.80	3.00	3.00	3.60	4.80	7.20	13.20	16.20
" N. P., " "	2.40	2.40	2.40	3.60	4.20	5.40	7.80	10.80	18.00	22.20
" Finished, Fancy.. "	1.20	1.20	1.20	1.80	1.80	2.40	3.00	4.80	9.00	12.00
" N. P., " .. "	1.80	1.80	1.80	2.40	3.00	4.20	6.00	8.40	13.80	18.00
" Finished, Heavy . "	....	....	....	....	....	....	....	6.00	8.40	10.20	14.40
" N. P., " "	....	....	....	....	....	....	....	9.00	12.00	15.00	20.40

RAISED STRAINERS

WITH FLANGE

Plate E4385

WITH TRAP SCREW

Plate E4386

FOR IRON PIPE

Plate E4387

Size.....inches	2	2½	3	3½	4
Price, Finished, with Flange.....per dozen	8.40	....	12.00	18.00	24.00
" Nickel-plated, with Flange..... "	10.20	....	15.00	22.20	30.00
" Finished, with Trap Screw..... "	15.00	21.00	30.00	....	48.00
" Nickel-plated, with Trap Screw... "	17.40	24.00	34.20	....	54.00
" Finished, for Iron Pipe..... "	13.20	18.00	26.40	....	45.00
" Nickel-plated, for Iron Pipe..... "	15.00	21.00	30.00	....	51.00

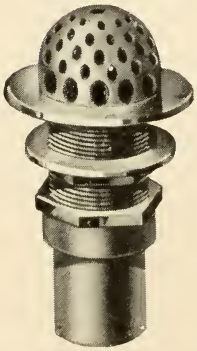


Plate E4388

FOR URINAL TROUGH

Size.....inches	1¼	1½
Diameter of Flange..... "	3	3
Price, Finished.....per dozen	30.00	42.00
" Nickel-plated..... "	36.00	48.00

Size.....inches	1½	2
Diameter of Flange..... "	3½	4
Price, Finished.....per dozen	48.00	60.00
" Nickel-plated..... "	54.00	66.00

PLUMBERS' SAFETY CHAIN

No. 00

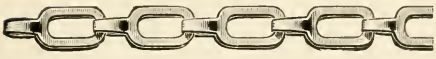


Plate E4391

No. 0

Plate E4392

No. 1

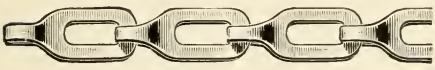


Plate E4393

No. 2

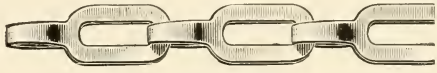


Plate E4394

SAFETY CHAINS IN BOXES OF 12 YARDS

Number	000	00	0	1	2	3	4
Price, Brass ..... per box	1.25	1.45	1.80	2.25	2.90	3.60	4.15

Net extra for nickel-plating.

SAFETY CHAINS ON REELS OF 500 FEET

Number	000	00	0	1	2	3	4
Price, Brass ....per 100 feet	3.50	4.00	5.00	6.25	8.00	10.00	11.50

Net extra for nickel-plating.

CHAIN WITH SNAPS

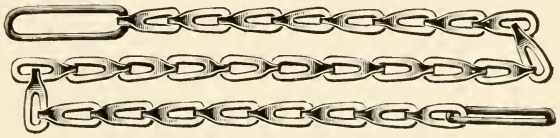


Plate E4395

SAFETY CHAINS WITH SNAPS

Number	00	0	1	2
Price, Brass Basin Chains ..... per dozen	1.00	1.20	1.40	....
" " Bath Tub Chains ..... "	1.40	1.65	2.00	2.45
" " Wash Tray " ..... "	1.15	1.35	1.60	1.95

Net extra for nickel-plating.

SPLIT LINK

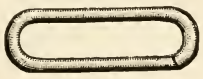


Plate E4396

EIGHT HOOK

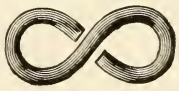


Plate E4397

SPLIT LINKS

Price, Brass, Small ..... per gross	1.50
" " Large ..... "	1.75
" Net Extra for Nickel-plating ..... "	.10

EIGHT HOOKS

Number	½	1½S	1½	2½	3½	1
Price, Brass ..... per gross	3.25	3.00	2.75	2.00	1.50	2.25
" Net Extra for Nickel-plating "	.12	.12	.12	.12	.08	.12

Number	2	3	4	5	6	7
Price, Brass ..... per gross	1.80	1.50	1.30	1.10	.90	.85
" Net Extra for Nickel-plating "	.12	.08	.08	.08	.08	.08

FINE THREAD BRASS FITTINGS

90° ELBOW

Plate E4401

45° ELBOW

Plate E4402

90° ELBOW
SLIP JOINT ONE END

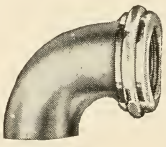


Plate E4403

45° ELBOW
SLIP JOINT ONE END

Plate E4404

Size ..... inches	1¼	1½
Price, 90° Elbows, Nickel-plated ..... each	.50	.60
" 45° " " " ..... "	.50	.60
" 90° " " " Slip Joint One End ..... "	.65	.80
" 45° " " " " " " " ..... "	.65	.80

90° ELBOW
SLIP JOINT BOTH ENDS

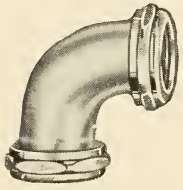


Plate E4405

TWIN ELBOWS
SLIP JOINT TWO ENDS

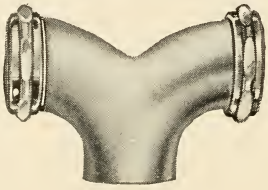


Plate E4406

SLIP JOINT ALL ENDS

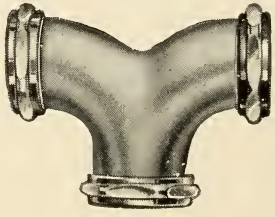


Plate E4407

Size ..... inches	1¼	1½
Price, 90° Elbows, Nickel-plated, Slip Joint Both Ends ..... each	.80	.95
" Twin " " " " " Two " ..... "	1.20	1.40
" " " " " " " All " ..... "	1.30	1.50

All fittings can be reamed to solder if specified.

McDONALD COMPOUND LEVER BALL COCKS

RED METAL BRONZE SEAT

FOR HIGH AND LOW CLOSET TANKS

HIGHLY EFFICIENT VERY QUIET

These ball cocks are strictly high-grade, made of the best materials, carefully finished, assembled and tested. Cast parts are made of red brass, while the raised valve seat is made of bronze, burnished tc a perfect finish. Ball cocks are supported on seamless drawn brass pipe, iron pipe size. Plunger has a cupped leather to prevent water from spurting out at the top. Plunger disc is encased by a brass disc holder, which screws on the lower end of the plunger. Plunger is easily taken out for repair, by removing the brass thumbscrew. Shank is threaded for ¾-inch pipe, where it passes through the bottom of the closet tank, and has a nickel-plated union nut to connect the supply pipe. A rubber reducing washer is sent in the union nut, to retard the supply of water to the closet tank when water pressure is over 50 pounds.

These compound lever ball cocks are adjustable to various pressures, from the lowest to the highest. When adjusted so that float has its greatest leverage, they will operate against 150 pounds pressure with a 5-inch float on the lever. There are three holes in the float lever, and three holes in the plunger lever, so the float lever can be moved in or out, and the link connecting plunger lever to float lever can be coupled to either hole in the plunger lever to increase or decrease the power of the float, according to the water pressure being high or low.

Illustrations do not show float and rod, but prices below are for the ball cocks, with and without float.

No. 1
FOR HIGH TANKS

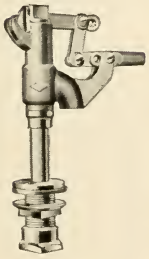


Plate E4411

No. 2
ELEVATED
NO AFTER-FILL TUBE
FOR LOW TANKS

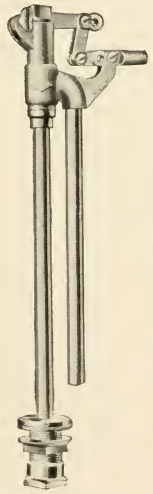


Plate E4412

No. 3
SEMI-LOW DOWN
WITH AFTER-FILL TUBE
FOR LOW TANKS

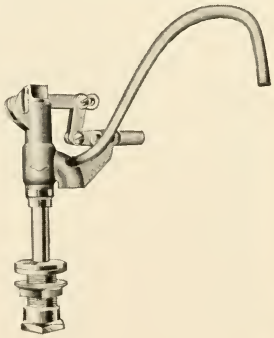


Plate E4413

No. 4
ELEVATED
WITH AFTER-FILL TUBE
FOR LOW TANKS

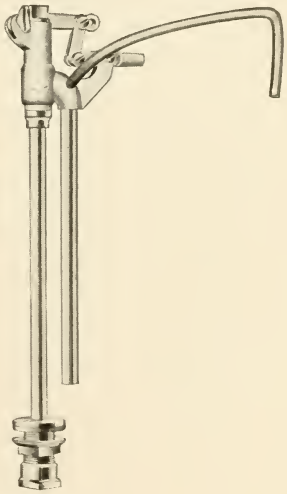


Plate E4414

Number	1	2	3	4
Price, as shown.....each	2.50	3.10	2.70	3.30
" with 4x4½-inch No. Sol. Copper Float ... "	3.40	4.00	3.60	4.20
" with 5-inch Glass Float..... "	3.40	4.00	3.60	4.20

McDONALD RELIABLE BALL COCKS

QUICK FILLING AND CLOSING RED METAL

FOR HIGH AND LOW CLOSET TANKS

The ball cocks shown on this page have been made by us for over 20 years, and the satisfactory service they have rendered enables us to recommend them for use where the water pressure does not exceed 70 pounds. For higher pressures we recommend our compound lever ball cocks.

Made of red brass, carefully finished and tested. Elevated ball cocks are supported on seamless annealed brass pipe, iron pipe size. Plunger has a cupped leather to prevent water from spurting out at the top. Plunger disc is encased in a brass disc holder, which screws on the lower end of plunger. Plunger is easily taken out for repair by removing the brass thumb screw. Shank is threaded for ¾-inch pipe where it passes through the bottom of the closet tank, and has a nickel-plated brass union nut to connect to the supply pipe. A rubber reducing washer is sent in the union nut to retard the flow of water to the closet tank when water pressure is over 50 pounds. Ball cock has a raised seat, burnished to a perfect finish. When the ball cock is closed, the plunger link and arm of lever are almost in a straight line, giving the float great power against the pressure of the water.

Illustrations do not show float and rod, but prices below are for the ball cocks, with and without float.

No. 5
FOR HIGH TANKS

Plate E4421

No. 6
ELEVATED
NO AFTER-FILL TUBE
FOR LOW TANKS

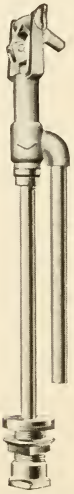


Plate E4422

No. 7
LOW DOWN
WITH AFTER-FILL TUBE
FOR LOW TANKS

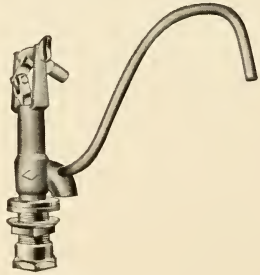


Plate E4423

No. 8
ELEVATED
WITH AFTER-FILL TUBE
FOR LOW TANKS

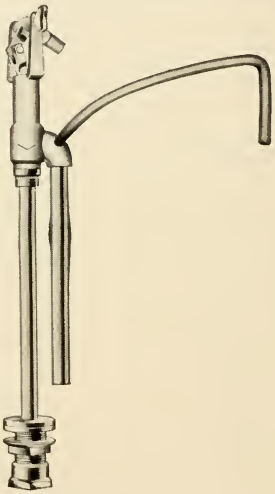


Plate E4424

Number	5	6	7	8
Price, as shown.....each	2.40	3.00	2.60	3.20
" with 4x4½-inch No. Sol. Copper Float ... "	3.30	3.90	3.50	4.10
" with 5-inch Glass Float ..... "	3.30	3.90	3.50	4.10

REPAIRS FOR McDONALD BALL COCKS

RELIABLE

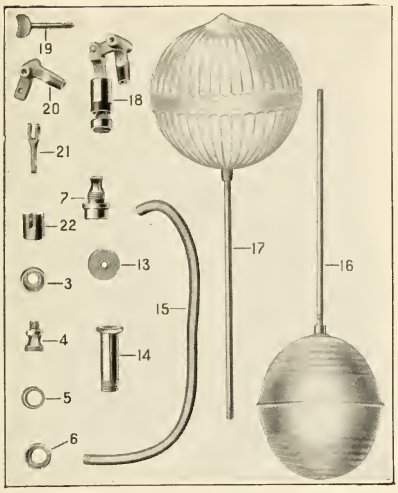


Plate E4431

COMPOUND LEVER

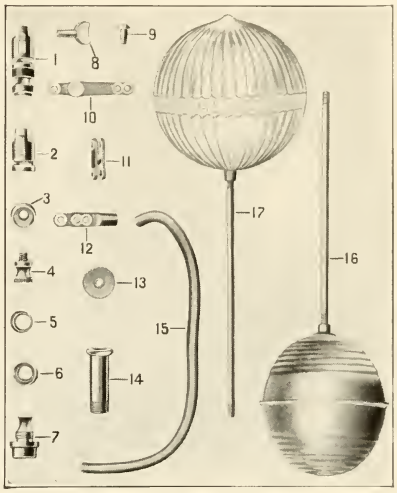


Plate E4432

PARTS OF RELIABLE BALL COCKS

No.		Price Each
3	Cupped Leather	.10
4	Bottom Part of Plunger	.25
5	Disc, Rubber	.04
6	Disc Holder, Brass	.08
7	Bronze Seat	.30
13	Reducing Washer, Rubber	.10
14	N. P. Tail Piece for ⅜-in. Pipe	.30
15	After-Fill Tube	.30
16	4x4½-in. Copper Float and Rod	.90
17	5-in. Glass Float and Rod	.90
18	Float Lever Arm, Link and Plunger Complete	1.00
19	Thumb Screw	.10
20	Float Lever Arm	.30
21	Link	.20
22	Top Part of Plunger	.30

PARTS OF COMPOUND LEVER BALL COCKS

No.		Price Each
1	Plunger Complete	.70
2	Top Part of Plunger	.30
3	Cupped Leather	.10
4	Bottom Part of Plunger	.25
5	Disc, Rubber	.04
6	Disc Holder, Brass	.08
7	Bronze Seat	.30
8	Thumb Screw	.10
9	Brass Screw	.04
10	Plunger Lever	.20
11	Link	.20
12	Socket for Float Lever	.20
13	Reducing Washer Rubber	.10
14	N. P. Tail Piece for ⅜-in. Pipe	.30
15	After-Fill Tube	.30
16	4x4½-in. Copper Float and Rod	.90
17	5-in. Glass Float and Rod	.90

Always order by number as well as name of part.

CLOSET SCREWS, WASHERS, ETC.

CLOSET SCREWS

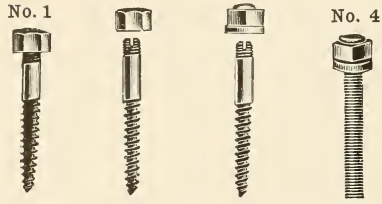


Plate E4441 Plate E4442 Plate E4443 Plate E4444

CLOSET SCREW WASHERS

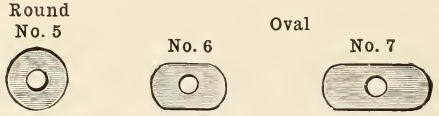


Plate E4445 Plate E4446 Plate E4447

Number	1	2	3	4	5	6	7
Price, Nickel-plated.....per hundred	4.50	5.00	6.00	7.00	2.50	3.00	4.00

FLANGES

SPUN FLANGE

Plate E4448

CLOSET SPUD FLANGE

Plate E4449

WITH SLIP NUT

Plate E44410

Size (I. P. 3/8 to 3/4. O. D. 1 1/8 to 2)..inches	3/8	1/2	3/4	1 1/8	1 1/4	1 3/8	1 1/2	2
Price, Nickel-plated Spun Flanges.....each	.04	.04	.06	.06	.07	.07	.07	.10

Size.....inches	1 1/4	1 3/8	1 1/2	2
Price, Nickel-plated Closet Spud Flanges.....each	.06	...	.08	.12
" " " Flanges with Slip Nut ..... "	.30	.40	.40	.70

FLOOR FLANGES

STANDARD FLANGES WITH RUBBER GASKET

STANDARD FLANGE

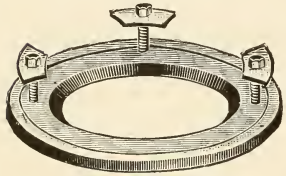


Plate E44411

RUBBER FLOOR FLANGE GASKET

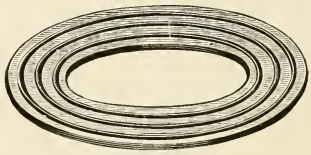


Plate E44412

This closet floor flange is tapped for bolts in four places, so as to fit any closet. There are four slots for screws to fasten the flange to the floor. Two 1/4-inch bolts with solid nickel-plated heads go with each flange. Rubber gasket is of high quality. Flange measures 6 9/16 inches outside diameter, 4 1/4 inches inside diameter, 5 3/4 inches center to center of bolt holes.

Price, Complete with Gasket and 2 Bolts.....each	1.00
" Flange only, without Gasket or Bolts..... "	.70
" Rubber Gasket.....per dozen	6.00

DIAMOND BRASS CLOSET FLOOR FLANGES
WITH BRASS BOLTS AND ASBESTOS GRAPHITE GASKETS

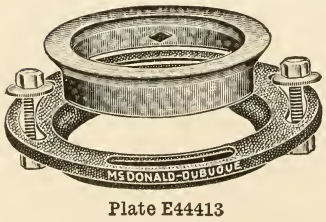


Plate E44413

This is made of heavy cast brass, with long slots which will fit any closet bowl. The gasket is beveled, and will make a tight joint between closet and waste. Brass flange is 7 inches outside diameter, 4 5/16 inches inside diameter and 5 3/4 inches center to center of bolt holes or slots, Weighs 1 1/4 pounds.

Price, Complete with Gasket and Bolts with N. P. Nuts.....each	1.50
Price. Gasket Only..... "	.50

RUBBER SUNDRIES

RUBBER CLOSET CONNECTIONS

ELBOW

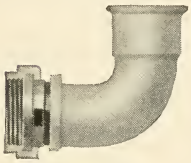


Plate E4451

STRAIGHT

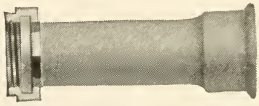


Plate E4452

Size .....inches	1¼x1¼	1¼x1½	1½x1½	1½x2	2x2
Price, Straight or Elbow..per dozen	6.00	9.00	9.00	12.00	12.00

RUBBER TANK BALL

OHLIGER CONNECTION

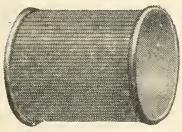


Plate E4453

ROBB CONNECTION

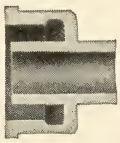


Plate E4454

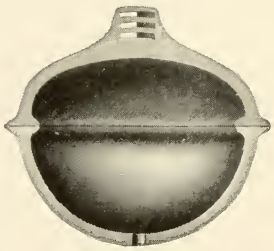


Plate E4455

OHLIGER CONNECTIONS

For rubber plug bowls, the overflow of common overflow bowls, urinals, etc.

Price.....per dozen 2.50

ROBB RUBBER CONNECTIONS

For connecting supply pipe to closet bowls, urinals, hoppers, wash basins, etc.

Price.....per dozen 2.50

RUBBER TANK BALLS

Number	1	3	4	5
Size.....inches	2	2½	2¾	3
Price .....each	.50	.60	.70	.80

CLOSET FLOOR FLANGE GASKET

SYPHON VALVE WASHERS

BLUNT EDGE

Plate E4456

FEATHER EDGE

Plate E4457

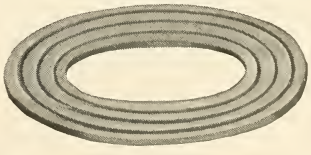


Plate E4458

SYPHON VALVE WASHERS

Size.....inches	1¼	1½	2
Price, Blunt Edge.....per dozen	2.50	2.75	3.00
" Feather Edge..... "	2.50	2.75	3.00

CLOSET FLOOR FLANGE GASKETS

Price.....each .50

RUBBER SUNDRIES

BASIN WASTE WASHERS

SLIP JOINT WASHER

Plate E4461

UNIQUE

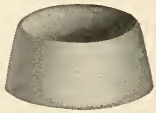


Plate E4462

REGULAR

Plate E4463

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Slip Joint Washers.....per dozen	.50	.50	.60	.75	1.00	1.10	1.20
" Unique Basin Waste Washers.... "	...	...	...	2.00	2.50	3.00	....
" Regular " " " .... "	...	...	...	2.00	3.00	3.50	....

BATH WASTE WASHERS

No. 1

Plate E4464

No. 2

Plate E4465

No. 3

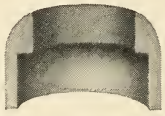


Plate E4466

Size.....inches	1	1 1/4	1 1/2	1 5/8
Price, No. 1 .....per dozen	2.50	....	....	....
" " 2 ..... "	....	3.00	....	....
" " 3 ..... "	3.50	4.00	4.50	6.00

BATH PLUG WASHER

Plate E4467

BASIN GASKET

Plate E4468

SINK GASKET

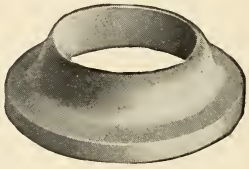


Plate E4469

Price, Bath Plug Washers.per dozen 1.00
" Basin Gaskets..... " .85
Price, Sink Gaskets...per dozen 1.50

BUMPERS

OBLONG

Plate E44610

TACK

Plate E44611

SCREW

Plate F44612

OBLONG BUMPERS

Number	1	2	3
Length.....inches	1 5/8	2 1/8	2 1/2
Width..... "	1/2	1/2	1/2
Price.....per 100	6.00	7.00	8.00

TACK AND SCREW BUMPERS

Diameter.....inches	3/8	1/2	5/8	3/4	7/8	1
Price, Tack Bumpers.....per dozen	.10	.15	.20	.30	...	....
" Screw " ..... "	...	...	...	.60	.70	1.00

VITREOUS CHINA DRINKING FOUNTAINS

Plate E4471

Plate E4472

PLATE E4471

Vitreous China Pedestal Drinking Fountain with Nickel-plated Self-closing Valve and Vitreous China Bubbling Cup, Supply and Outlet through Center of Pedestal.

Height	inches	30	36
Outside Diameter of Bowl	"	11½	13¾
Diameter of Base	"	15	18
Price, as described		**25.75**	**31.00**
" Fountain only		**22.00**	**29.00**

PLATE E4472

Vitreous China Pedestal Drinking Fountain with Vitreous China Bubbling Cup, fitted with Supply and Waste inside of Pedestal, Self-closing Valve and Loose Key Stop.

Diameter of Base, 14½ inches. Diameter of Top, 11 inches.

Height inches	26	30	36
Price, as described	**36.50**	**36.50**	**41.50**
" Fountain only	**18.00**	**18.00**	**22.00**

If with Push Button Supply Valve in Floor instead of Valve at Side, add **7.00**

ENAMELED IRON DRINKING FOUNTAIN

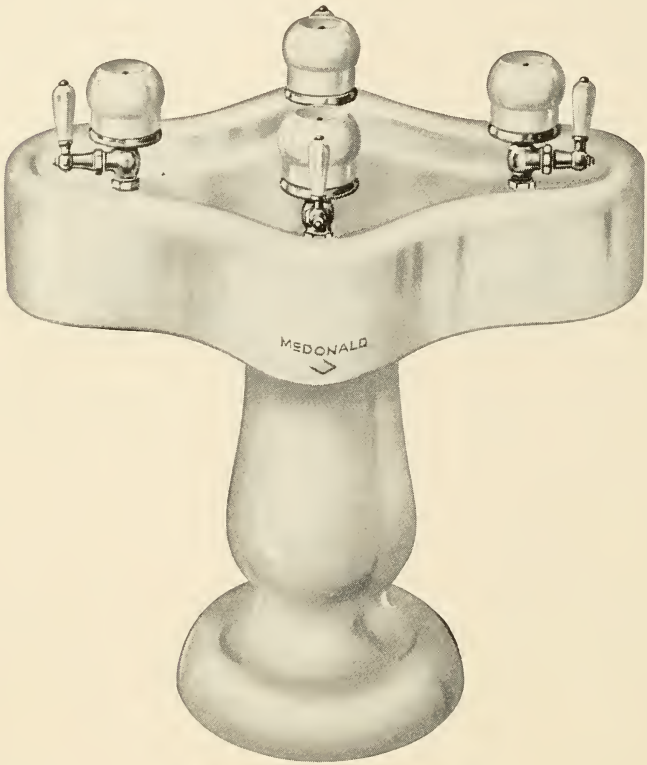


Plate E4481

Enameled Iron Drinking Fountain on Enameled Iron Pedestal fitted with Four McDonald Self-closing Bubbler Heads with Vitreous China Cup, Nickel-plated Brass Strainer, Concealed Galvanized Supply Pipe with Loose Key Stops and Galvanized Waste Pipe to Floor.

Size of Slab, 29x29 inches Apron, 6 inches

Height	30 inches	36 inches
Complete, as described	88.00	90.00
If with Continuous flow Bubbler Heads	78.00	80.00

ENAMELED IRON DRINKING FOUNTAIN

Plate E4491

Enameled Iron Drinking Fountain on Enameled Iron Pedestal Fitted with Two McDonald Self-closing Bubbler Heads with Vitreous China Cup, N. P. Brass Strainer, Concealed Galvanized Supply Pipe with Loose Key Stops and Galvanized Waste Pipe to Floor.

Size of Slab, 15x29 inches Apron 6 inches

Height	30 inches	36 inches
Complete, as described	54.00	56.00
If with Continuous-flow Bubbler Heads	49.00	51.00

PAINTED IRON DRINKING FOUNTAIN

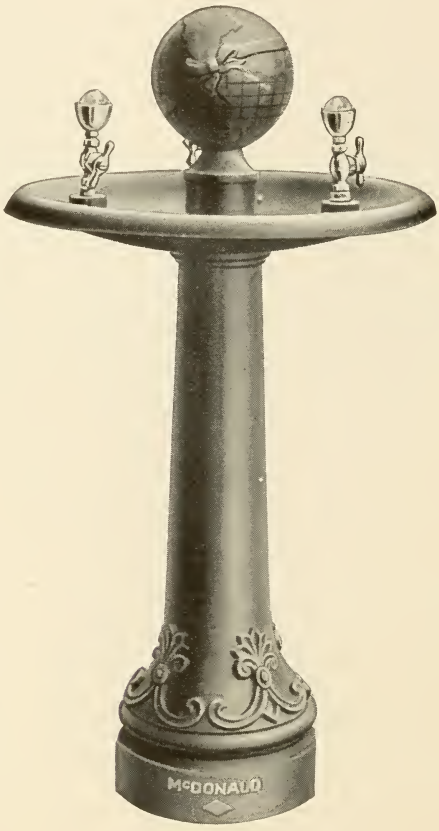


Plate E4501

Painted Iron Drinking Fountain fitted with Three N. P. Self-closing Brass Bubbler Heads.

3 feet 10 inches high; Base, 12-inch diameter.

	Painted One Coat	Bronzed
Price, to fasten on Stone or Concrete, with 3 Cups	84.00	91.00
Add for Dog Basin.....each	5.00	
Deduct for Continuous Flow Cups..... "	3.00	

PAINTED IRON DRINKING FOUNTAIN

Plate E4511

Painted Iron Drinking Fountain fitted with Three N. P. McDonald Brass Bubbler Heads.

3 feet high to top of Basin; diameter of Basin, 28 inches; Base, 18 inches diameter

	Painted One Coat	Bronzed
Price, to Fasten on Stone or Concrete, with 3 Cups	47.00	54.00
Add for Self-closing Valves, each	2.75	
" " Dog Basin	5.00	
" " Additional Bubbler Heads, each	2.00	

ENAMELED IRON DRINKING FOUNTAIN

CONTINUOUS FLOW

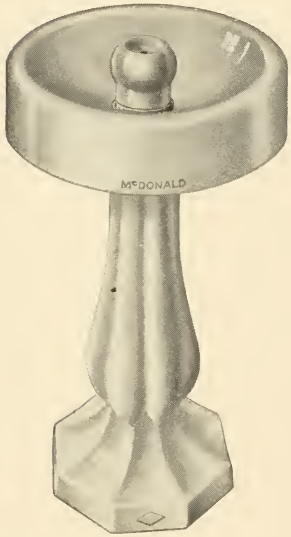


Plate E4521

SELF-CLOSING

Plate E4522

Enameled Iron Drinking Fountain with Enameled Iron Pedestal, with Continuous Flow or Self-closing McDonald Bubbler Head and Vitreous China Cup.

The self-closing fountain is especially well fitted for school house use. The self-closing bubbler handle, being placed to the side of bubbler, is easily accessible. The lever handle is large so as to permit the self-closing stop to be operated by any child.

The bubbling heads are threaded for ⅜-inch iron pipe, and lug on bottom of basin is threaded for 1½-inch iron waste pipe.

Where water pressure is high we recommend the use of a controlling valve or stop in addition to the stop operated by the user.

Height	inches	30	36
Diameter of Basin	"	15¼	15¼
Price, as described, Continuous Flow, Enameled All Over		**27.50**	**30.00**
" " " Self-closing, Enameled All Over		**30.00**	**32.50**

PAINTED IRON DRINKING FOUNTAIN

CONTINUOUS FLOW

Plate E4531

SELF-CLOSING

Plate E4532

Painted Iron Drinking Fountain on Painted Iron Pedestal, with Continuous Flow or Self-closing N. P. McDonald Bubbler Head.

The self-closing fountain is well adapted for outside public use. The pedestal and outside of basin are furnished painted black and the inside of basin is painted with white enamel. The self-closing bubbler handle being placed to the side of bubbler is easily accessible. The lever handle is large so as to permit the self-closing stop to be operated by any child.

The bubbling heads are threaded for ⅜-inch iron pipe and lug on bottom of basin is threaded for 1½-inch iron waste pipe.

Where water pressure is high we recommend the use of a controlling valve or stop in addition to the stop operated by the user.

Height	inches	30	36
Diameter of Basin	"	15¼	15¼
Price, as described, Continuous Flow		**21.50**	**24.00**
" " " Self-closing		**24.00**	**26.50**

ENAMELED IRON DRINKING FOUNTAIN

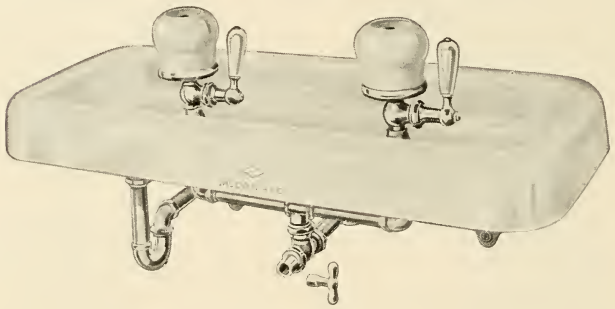


Plate E4541

Enameled Iron Drinking Fountain on Concealed Brackets with Self-closing McDonald Bubbling Heads and Vitreous China Cups, ⅜-inch N. P. Supply Pipe with Loose Key Stop, and 1¼-inch N. P. P. Trap to Wall.

This fountain can be fitted with 2, 3 or 4 cups and is well adapted for public and also factory use.

Length .....inches	30	42	54
Number of Bubbling Cups.....	2	3	4
Width of Fountain .....inches	13¼	13¼	13¼
Depth Inside at Outlet..... "	2½	2½	2½
Price, as described.....each	**32.50**	**46.00**	**57.00**

Can be furnished with continuous flow cups, if desired.

McDONALD VITREOUS CHINA DRINKING FOUNTAIN

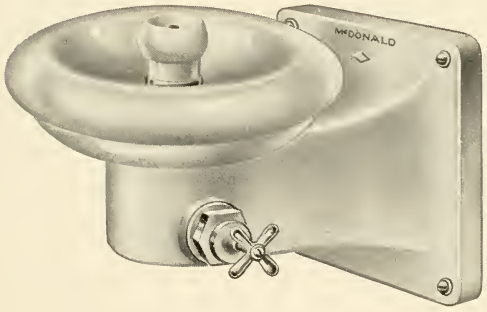


Plate E4551

This is one of our most popular drinking fountains. It is a high-grade article and yet offered at a very reasonable price. It is a One-piece Vitreous China Wall Fountain fitted with McDonald Vitreous Cup and Brass Bubbler Head and fitted with Self-closing Stop. Supply and Waste may be taken to either wall or floor. Bottom of Fountain is open so that the Trap is easily accessible for cleaning without taking Fountain from wall.

Price, Complete with Vitreous Cup, Self-closing Fountain Supply Connection and Cast Brass Trap..... .....each **26.50**

Can be furnished with Continuous Flow Bubbler. If so ordered, deduct from list each, 2.50.

VITREOUS CHINA DRINKING FOUNTAIN

WITH McDONALD BUBBLER HEAD

SELF-CLOSING

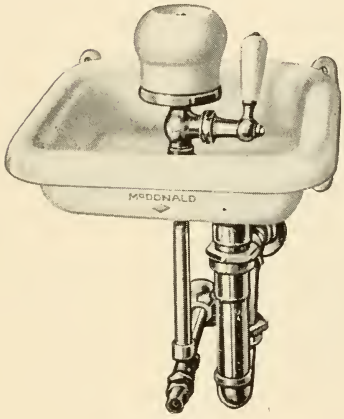


Plate E4561

CONTINUOUS FLOW

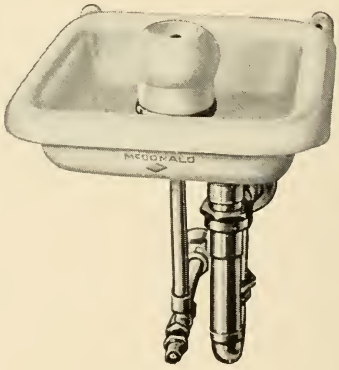


Plate E4562

SELF-CLOSING

Square Vitreous China Basin on Enameled Iron Brackets, fitted with McDonald Self-closing Bubbler Head and Vitreous China Cup, N. P. Supply to Wall with Loose Key Stop, N. P. Waste Strainer and N. P. Adjustable P Trap.

Size Basin Outside	inches	12x12
Price, Complete as described	each	**25.00**

CONTINUOUS FLOW

Square Vitreous China Basin on Enameled Iron Brackets, fitted with McDonald Continuous Flow Bubbler Head and Vitreous China Cup, N. P. Supply to Wall with Loose Key Stop N. P. Waste Strainer and N. P. Adjustable P Trap.

Size Basin Outside	inches	12x12
Price, Complete as described	each	**22.50**

ENAMELED IRON DRINKING FOUNTAIN

WITH McDONALD BUBBLER HEAD

SELF-CLOSING

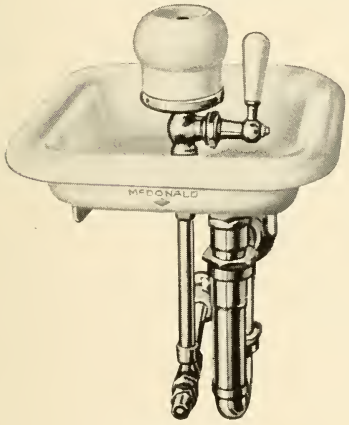


Plate E4571

CONTINUOUS FLOW

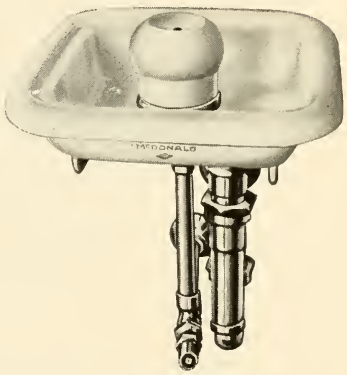


Plate E4572

SELF-CLOSING

Square Enameled in and out Basin on Enameled Iron Brackets fitted with McDonald Self-Closing Bubbler Head and Vitreous China Cup, Nickel-plated Supply to Wall with Loose Key Stop, Nickel-plated Waste Strainer and Nickel-plated Adjustable P Trap.

Size Basin Outside	inches	12x12
Price, Complete as described	each	**24.00**

CONTINUOUS FLOW

Square Enameled in and out Basin on Enameled Iron Brackets, fitted with McDonald Continuous Flow Bubbler Head and Vitreous China Cup, Nickel-plated Supply to Wall with Loose Key Stop, Nickel-plated Waste Strainer and Nickel-plated Adjustable P Trap.

Size Basin Outside	inches	12x12
Price, Complete as described	each	**21.50**

ENAMELED IRON DRINKING FOUNTAINS

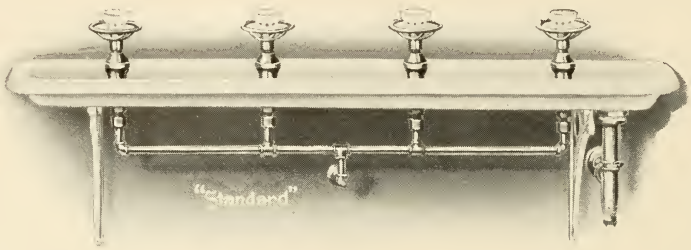


Plate E4581

Enameled Iron Drinking Fountain on Painted Brackets with Nickel-plated Self-Closing Bubbling Valves with China Cups and Operating Rings, ⅜-inch Nickel-plated Supply Pipe with Loose Key Stop and 1¼-inch Nickel-plated "P" Trap.

Width of Trough, 12 inches.

Length .. ..inches	30	42	54
Number of Cups	2	3	4
Price, as described, Enameled All Over.....	**42.00**	**54.00**	**69.50**
" " " " Inside.....	**39.50**	**51.00**	**65.50**
If with Continuous Flow Bubblers without Operating Rings, deduct.....	**8.00**	**11.50**	**16.00**

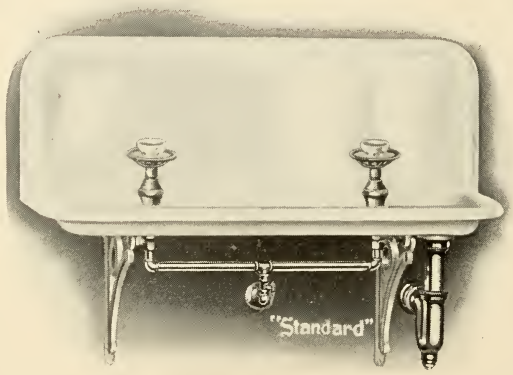


Plate E4582

Enameled Iron Drinking Fountain with Integral Back, Painted Brackets, Nickel-plated Self-Closing Bubbling Valves with China Cups and Operating Rings, ⅜-inch Nickel-plated Supply Pipe with Loose Key Stop and 1¼-inch Nickel-plated "P" Trap.

Length, 36 inches. Width, 14 inches. Back, 12 inches.

Price, as described, Enameled All Over.....	**55.00**
" " " " Inside	**52.00**
If with Continuous Flow Bubblers without Operating Rings, deduct	**8.00**

McDONALD BUBBLING CUPS

FOR SINKS

These Bubbling Cups are for use over Sinks, the China Handle Fuller Stop or Lever Handle Self-closing Stop coming through one of the holes in the Sink Back. These Stops are threaded male for ½-inch Iron Pipe and have an Adjustable Flange same as a Sink Bibb. Swivel Arms, on which Bubbling Cup is screwed, measure 9½ inches from center of Bubbler to back of Sink, but can be furnished longer or shorter, as ordered. A slotted screw, in the top of the swivel, is used to adjust the flow of water to various pressures.

WITH CHINA HANDLE FULLER STOP

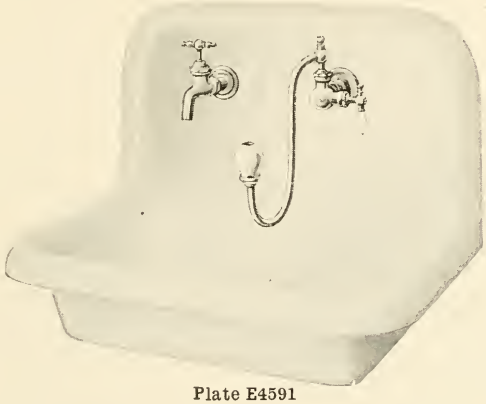


Plate E4591

18x30-inch One-piece Roll Rim Sink, with ⅝-inch Nickel-plated Compression Plain Bibb with Loose Adjustable Sleeve Flange and Bubbling Cup, Complete, as shown.....each **24.00**
Price, Bubbling Cup, only,..... " **6.50**

WITH LEVER HANDLE SELF-CLOSING STOP

Plate E4592

18x30-inch One-piece Roll Rim Sink with ⅝-inch Nickel-plated Plain Bibb with Loose Adjustable Sleeve Flange and Bubbling Cup, Complete as shown... **24.50**
Price, Bubbling Cup, only.....each **7.00**

McDONALD BUBBLING CUPS

FOR LAVATORIES

These Bubbling Cups are made of Nickel-plated Brass, and have either Fuller or Self-closing Stops, which fit in the ordinary Basin Cock hole of a Lavatory. These Stops are for either right or left-hand side of a Lavatory and have Swivel Arms on which the Bubbling Cup is screwed. Regularly this Swivel Arm is 7 inches long, from center of Stop to center of Bubbling Cup, but longer or shorter arms will be furnished on order. The Fuller and Self-closing Stops have same shanks as Basin Cocks. A slotted screw, in the top of the swivel, is used to adjust the flow of water to various pressures.

WITH CHINA HANDLE
FULLER STOP

Plate E4601

WITH LEVER HANDLE
SELF-CLOSING STOP

Plate E4602

PLATE E4601

18x21x8-inch Enameled Lavatory on Wall Hanger, Nickel-plated Compression Basin Cock with China Lever Handle and Bubbling Cup, Complete, as shown	19.00
Bubbling Cup only.....each	6.50

PLATE E4602

18x21x8-inch Enameled Lavatory on Wall Hanger, Nickel-plated Compression Basin Cock with China Lever Handle and Bubbling Cup, Complete, as shown	19.50
Bubbling Cup only.....each	7.00

McDONALD BUBBLING CUPS

Below we show our McDonald Brass Bubbler Head fitted with Vitreous China Cup. A Nickel-plated Brass Rim is spun around bottom of Cup so that it is held securely in place. Their construction is such as to provide an ample and convenient stream of water. Where water pressure is high we recommend the use of a controlling valve or stop in addition to the stop operated by the user.

CONTINUOUS FLOW

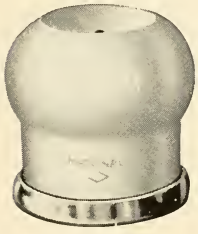


Plate E4611

SELF CLOSING

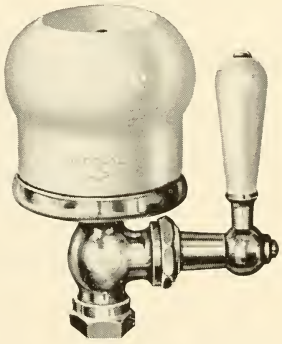


Plate E4612

Continuous-flow Bubbling Cup threaded in the bottom for $\frac{3}{8}$-inch iron pipe supply.

Price.....each 6.00

Self Closing Bubbling Cup. The Self-closing Bubbler, Handle being placed to the side of the Bubbler is easily accessible. The Lever Handle is large so as to permit the self-closing stop to be operated by any child. Self-closing stop is threaded for $\frac{3}{8}$-inch iron pipe.

Price.....each 9.00

McDONALD BUBBLING CUPS

On this page we show our new Bubbling Cups, which are simple and serviceable, for use in Homes, Schools, Stores, Factories and Public Buildings. For Sanitary Reasons, the common or public drinking cup is prohibited in many states.

Our Bubbling Cups are designed for use over Sinks, Lavatories or Stationary Drinking Fountains. They are made of Brass, highly polished and Nickel-plated. Their construction is such as to provide an ample and convenient stream of water, easy to use.

BUBBLER HEADS

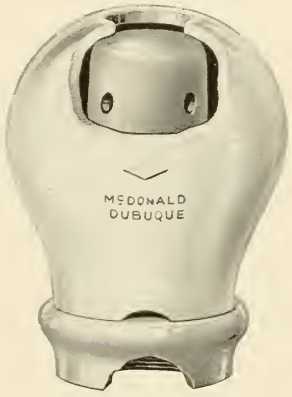


Plate E4621

BUBBLING CUPS

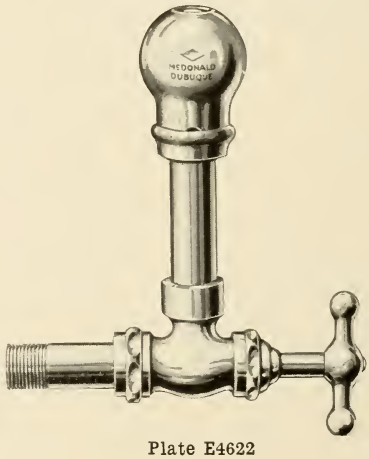


Plate E4622

PLATE E4621

BUBBLER HEADS

NICKEL-PLATED BRASS — TAPPED FOR IRON PIPE

This Bubbler Head only is intended for use over a Stationary Drinking Fountain or some other receptor provided with a drain to carry off the waste water.

It is tapped for ¼ or ⅜ inch pipe, as ordered, so regular pipe and fittings can be used in its installation. Where water pressure is high, we recommend the use of a controlling valve or stop in addition to the stop operated by the user.

Price, for ¼-inch Pipe.....each **2.00**
" " ⅜ " " ..... " **2.00**

PLATE E4622

BUBBLING CUPS

FOR SINK OR LAVATORY

This is a very convenient and inexpensive fixture for use over a Sink, Lavatory or other receptor which is provided with a drain. The Angle Stop is high-grade, with countersunk disc, and the nipples screwed into it are brass, nickel-plated. These N. P. Brass Nipples are ⅜-inch Iron Pipe size, so that ordinary Iron Pipe and Fittings can be used in its installation. The Brass Nipples are 3 inches long, but shorter or longer nipples can be furnished when so ordered.

Price, Nickel-plated.....each **4.00**

DIAMOND DRINKING FOUNTAIN

FOR MAN AND BEAST

AUTOMATIC OR CONTINUOUS FLOW

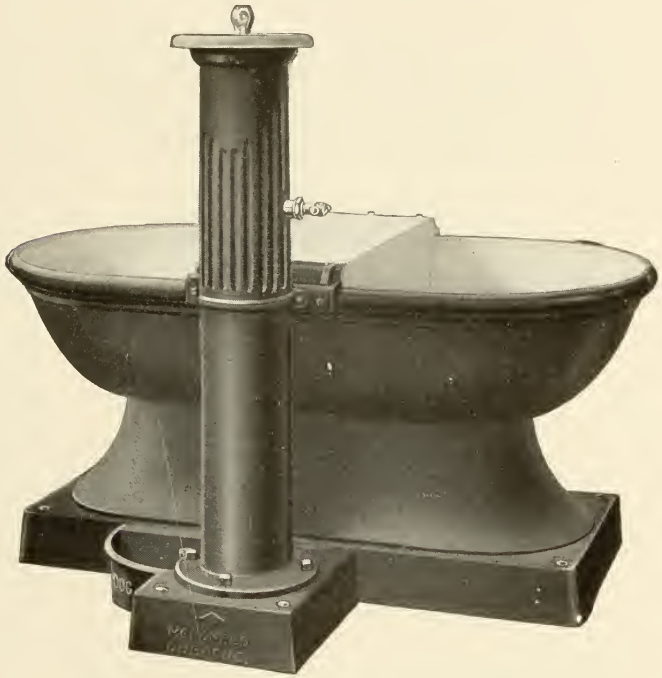


Plate E4631

THIS DIAMOND DRINKING FOUNTAIN FOR CONTINUOUS FLOW has an overflow pipe in the center of the basin, protected so that no pebbles or sand can clog it. The water, always flowing, will not stagnate.

THE AUTOMATIC DIAMOND FOUNTAIN, which shuts the water off when basin is full, has a ball cock to control the water supply, only permitting water to rise in the basin to the desired height. Automatic Fountains are generally used where there are no sewers. Self-Closing Stop for Bubbler is always sent with Automatic Fountains.

Post is 34 inches high and has a McDonald Bubbler Head in the center of the bowl at the top of the post. This Bubbler Head can be arranged to supply a continuous flow of water, or a Self-Closing Stop, with handle projecting from the post, can be used, so that water is supplied only when wanted. A Brass Controlling Valve, operated by a screw-driver, controls the stream of water at the Bubbler Head. A **HAND HOLE PLATE** is bolted to the post, which gives access to the Controlling Valve or Self-Closing Stop.

Basin and Post are separately piped and are connected to water supply and waste connections independent of each other.

Horse Basin 22 inches high, 24 inches wide, 48 inches long, 11 inches deep in the center.

Style of Fountain		Plain	Automatic
Price, as Shown, Painted White Inside	each	67.50	81.00

POST AND BUBBLER ONLY

With Bowl Painted White and Self-Closing Stop	each	28.00
" " " " continuous Flow	"	25.50

DIAMOND HORSE DRINKING FOUNTAINS

AUTOMATIC

Plate E4641

Diamond Automatic Horse Drinking Fountain has a ball cock to control the water supply, only permitting water to rise to the desired height. They are strongly made of cast iron with the inner surface painted white.

Fountain is 22 inches high. Basin is 48 inches long, 24 inches wide, and 11 inches deep in center. Base measures 18x41 inches.

Price, as shown.....each **53.00**

CONTINUOUS FLOW

Plate E4642

Diamond Continuous Flow Horse Drinking Fountain has an overflow pipe in the center of basin, protected so that no pebbles or sand can clog it. The water, always flowing, will not stagnate. Strongly made of cast iron, with inner surface painted white.

Fountain is 22 inches high. Basin is 48 inches long, 24 inches wide, and 11 inches deep in the center. Base measures 18x41 inches.

Price, as shown.....each **41.00**

Both these fountains should have stop and waste cocks in the water supply pipes, set down below freezing.

GALVANIZED RANGE BOILERS

STANDARD AND EXTRA HEAVY

Working Pressure Standard, up to 85 Pounds; Extra Heavy, up to 150 Pounds

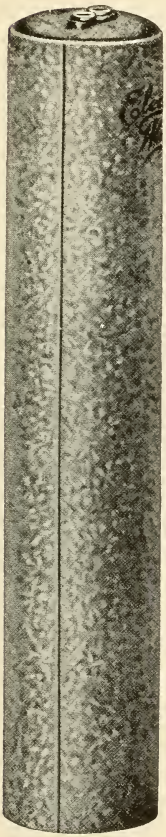


Plate E4651

VERTICAL

Diameter Inside of Shell Inches	Length of Shell Feet	Approximate Capacity Gallons	Price, Standard or Extra Heavy Horizontal or Vertical, Each
12	3	18	**14.50**
12	3½	21	**15.50**
12	4	24	**15.75**
14	3	24	**19.00**
12	4½	27	**18.50**
14	3½	28	**20.25**
12	5	30	**19.00**
14	4	32	**21.00**
14	4½	36	**21.50**
14	5	40	**24.00**
16	4	42	**26.00**
16	4½	47	**30.00**
16	5	52	**31.00**
18	4	53	**31.50**
18	5	66	**38.00**
20	5	82	**45.50**
22	5	100	**63.50**
24	5	120	**72.50**
24	6	144	**103.00**
24	7	168	**120.00**
24	8	192	**132.00**

HORIZONTAL

Plate E4652

Vertical range boilers have 4—1-inch openings, horizontal range boilers have 5—1-inch openings.

An increase in number or size of these tappings will be charged extra as follows:

Size.....inches	1	1¼	1½	2	2½	3	4
Price, net .....each	**.25**	**.25**	**.25**	**.50**	**1.00**	**1.50**	**2.00**

Unless otherwise specified on orders, we will ship standard weight boilers.

GALVANIZED RANGE BOILERS

WITH ONE-INCH GALVANIZED IRON STEAM COIL

VERTICAL

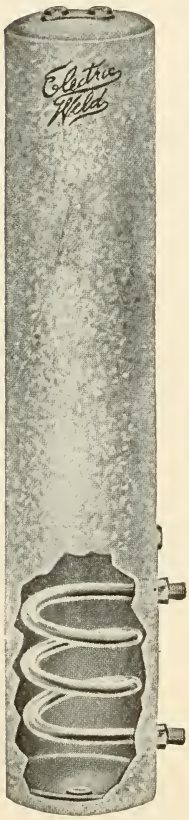


Plate E4661

HORIZONTAL, TOP INLET

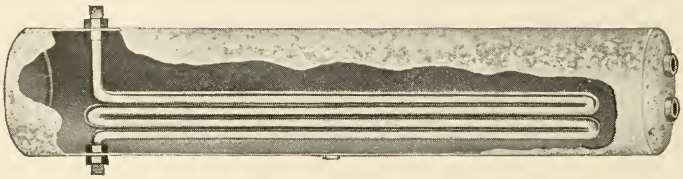


Plate E4662

HORIZONTAL, BOTTOM INLET

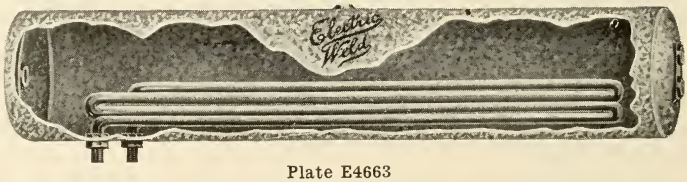


Plate E4663

HORIZONTAL, END INLET

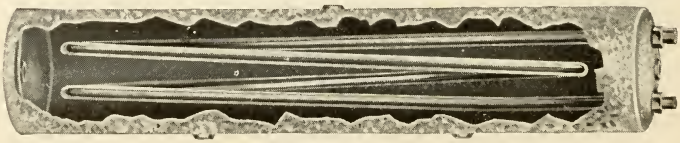


Plate E4664

1-INCH COILS FOR RANGE BOILERS

Diameter of Boiler.....inches	12	14	16	18	20	22	24
Price, Coils.....each	**10.50**	**12.00**	**16.00**	**18.00**	**21.00**	**25.00**	**30.00**

NOTE.—To obtain the price of a boiler with coil, add the price of coil to the regular price of boiler of corresponding diameter.

BOILER STANDS, HANGERS AND BRACKETS

BOILER STANDS

REGULAR

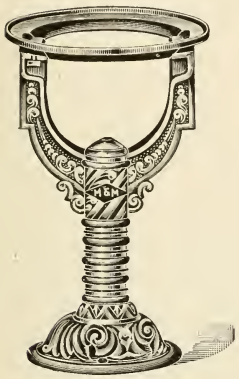


Plate E4671

DIAMOND TRIPOD

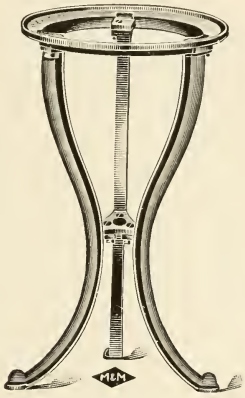


Plate E4672

HAWK'S UNIVERSAL

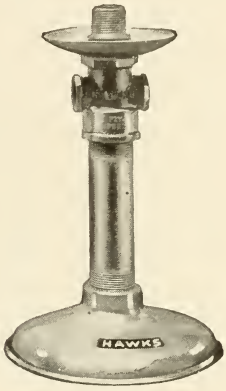


Plate E4673

REGULAR AND DIAMOND TRIPOD

Size Ring.....inches	12	13	14	15	16
Price, Regular, Plain.....each	1.25	1.30	1.40	1.50	1.75
" Tripod " ..... "	1.10	1.15	1.25	....	....
Size.....inches	17	18	20	22	24
Price, Regular, Plain.....each	1.85	2.00	2.25	2.75	3.50

Regular and Diamond Tripod Boiler Stands measure 21 inches high.

HAWK'S UNIVERSAL

This stand will fit any make of boiler. It is adjustable to any height by the use of 1¼-inch pipe cut to length desired.

To attach this boiler stand: screw it into the bottom of the range boiler tight, then turn the lock nut plate up against the bottom of the boiler.

Price, with Regular Length Nipple.....each 1.50

WROUGHT IRON HANGER

Plate E4674

FOR

HORIZONTAL BOILERS

WROUGHT IRON BRACKET

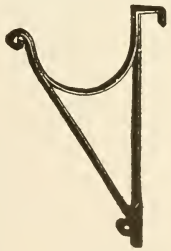


Plate E4675

WROUGHT IRON HANGERS AND BRACKETS

Size.....inches	12	14	16	18	20	22	24
Price, Hangers.....per pair	6.50	6.80	7.00	7.50	8.00	8.80	9.80
" Brackets..... "	11.00	11.50	12.50	13.50	19.00	20.00	28.00

ELECTRIC WELD COMBINATION BOILER AND GAS WATER HEATER

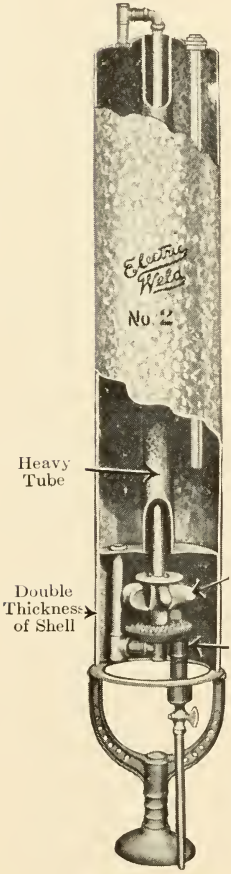


Plate E4681

No. 2

This combination boiler and gas water heater is offered as the first water heater whose complete installation cost is as low and lower than a range boiler and side heater.

The combined boiler and gas water heater is designed to secure to the householder the well recognized advantages of this general class of heater in gas saving, quick results, saving in space, ease of maintenance, simplicity and durability of construction at a price no greater than the unsightly and inefficient boiler and side heater.

All parts that the water touches are thoroughly galvanized.

Has a door for convenient lighting of the burner.

A burner that will not flash back.

Suitable for any purpose where hot water is required.

Equally satisfactory on artificial or natural gas.

It is an Electric Weld Product which insures the reliable character and construction of the heater.

All parts are readily changeable.

Note the simplicity of this heater and its sturdiness of construction.

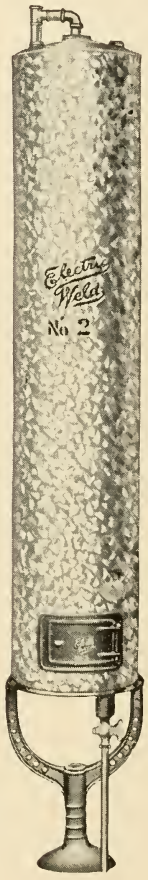


Plate E4682

Number	18	24	30
Size ..... inches	12x36	12x48	12x60
Approximate Weight ..... pounds	89	109	135
Price ..... each	**26.00**	**27.00**	**28.00**

Prices do not include stands.

LAWSON WATER HEATERS

CAST IRON JACKET

SINGLE COIL

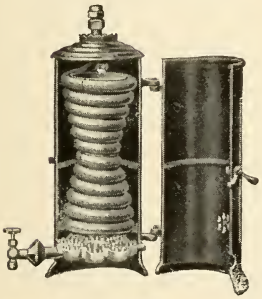


Plate E4691

DOUBLE COIL

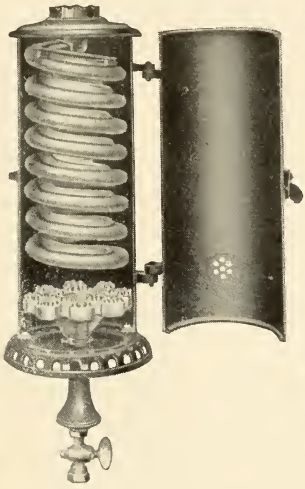


Plate E4692

TRIPLE COIL

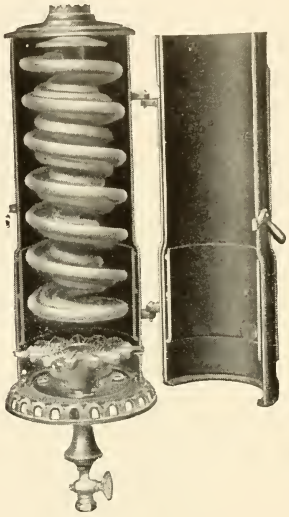


Plate E4693

No. 5 THERMOSTATIC VALVE

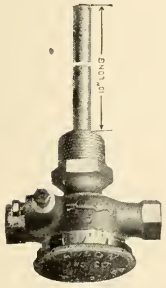


Plate E4694

Construction of the most durable type, cast iron jacket, top and base, all black japan finish. Specially constructed, high power star burner, cast iron deflectors, heavy brass tee handle cock. The double coil heater has one coil set within the other, increasing the heating surface and heating capacity, giving hot water practically on the instant. The triple coil heater is for big requirements, adapted for large dwellings, apartments, etc. ¾-inch tube.

The use of the thermostatic valve with these heaters is earnestly recommended. It may be set for any predetermined degree of heat desired. While the temperature of the water is below this mark the valve is open full and the gas burns to full capacity, and gradually, as the temperature rises to a desired point, the valve closes and keeps only a flame sufficient to keep the temperature at this point. Diameter of tube, ¾-inch.

Style	Single Coil			Double Coil			Triple Coil
Number	5	6	7	8	20	22	30
Height ..... inches	15	17	19	21	20½	22½	28
Diameter ..... "	7	7	7	7	7	7	8½
Price ..... each	**15.00**	**18.00**	**21.00**	**24.00**	**25.00**	**28.00**	**50.00**

For range boilers as follows: Nos. 5 and 6, for 24, 30 or 32-gallon; No. 7, for 35 or 40-gallon; No. 8, for 50 or 60-gallon: Nos. 20, 22 and 25, for 30, 35 or 40-gallon; No. 30, for 50 or 60-gallon. In ordering, state if for natural or manufactured gas.

THERMOSTATIC VALVES

Price, No. 5 with Temperature Indicator, ⅜-inch Connection ..... each **12.00**
" " 8 " " " " ½ " " ..... " **27.00**

In ordering, state if for natural or manufactured gas.

LAWSON WATER HEATERS

GASOLINE

STEEL JACKET, SINGLE COIL

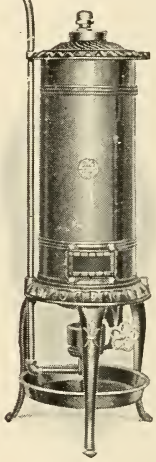


Plate E4703

GAS

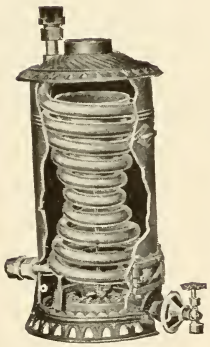


Plate E4701

No. 8
THERMOSTATIC
VALVE

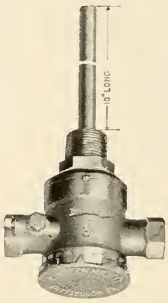


Plate E4702

NATURAL OR ARTIFICIAL GAS

Jacket is polished steel, asbestos-lined. Cast top and base, black japan finish. Copper coil with heavy brass unions. Cast iron deflectors. Cast iron burner (one piece, including mixer), nickel-plated cock for manufactured gas; needle valve for natural gas, ¾-inch tube.

Number	0	1	1½	2	3
Height.....inches	12	14	16	18	20
Diameter..... "	7½	7½	7½	7½	7½
Size of Boilers Suitable for..gallons	24, 30 or 32	24, 30 or 32	24, 30 or 32	35 or 40	50 or 60
Price, with Steel Jacket.....each	**10.50**	**12.00**	**15.00**	**18.00**	**21.00**

No. 0 furnished for natural gas only. No. 1½ is smallest size recommended for artificial gas. In ordering, state whether for natural or manufactured gas.

GASOLINE

This gasoline heater is constructed similarly to the gas heater, except for the burner and attachments required for it. ¾-inch tube.

Height.....inches	32
Diameter..... "	7½
Size of Boilers Suitable for.....gallons	30 or 40
Price, with Steel Jacket.....each	**45.00**

THERMOSTATIC VALVES

Price, No. 5, ⅜-inch Connection, with Temperature Indicator.....each	**12.00**
" " 8, ½ " " " " " ..... "	**27.00**

HUMPHREY INSTANTANEOUS BATH WATER HEATERS

No. 2

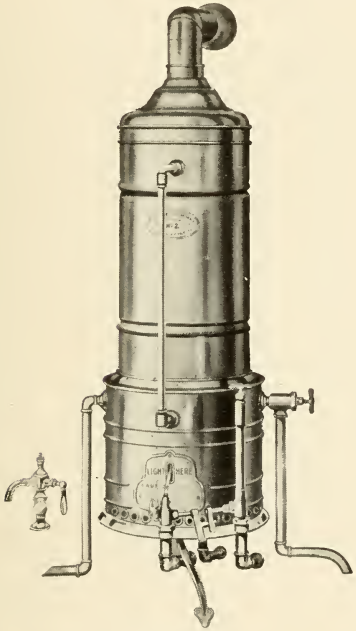


Plate E4711

Nos. 6 AND 8

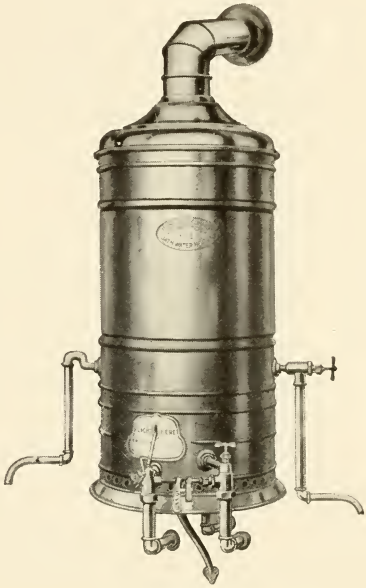
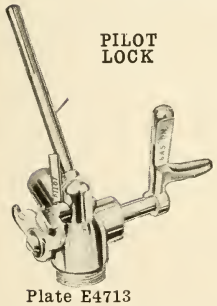


Plate E4712



PILOT LOCK

Plate E4713

A new and exclusive feature of these heaters is the improved pilot lock. This is a part of the gas valve and makes it impossible to turn on the gas to the main burner without first turning on gas to the pilot, making a gas explosion impossible. Any kind of gas except acetylene can be used.

Number	Diameter Inches	Height Inches	Gas Supply from Meter Inches	Gallons Heated per Min., 50° in Temperature	*Price Nickel-plated Each
2	12	36	¾	2½	**45.00**
†6	12	30	¾	3	**35.00**
†8	10¼	30	½	2½	**30.00**

* Prices include safety valves and unions, safety pilot lock, one bent outlet spout, white enameled steel shelf and nickel-plated bracket, but no fittings.

† Nos. 6 and 8 are contact heaters; the heated gases come in contact with the water and the heated water is suitable for bath and kitchen use, but not for drinking.

VENTILATING PIPE AND FITTINGS

Price, 3½-inch Copper Vent Pipe, Nickel-plated	per foot		.75
" 3½ " " Extension Thimbles, Nickel-plated	each		1.30
" 3½ " " Adjustable Elbows, " "	"		1.15
" 3½ " " Vent Pipe Collars, " "	"		.45
" Galvanized Iron Vent Hoods	"		2.00

INSTANTANEOUS WATER HEATERS

STYLES "OHIO M" AND "OHIO A"
FOR ARTIFICIAL, NATURAL
AND ACETYLENE GAS

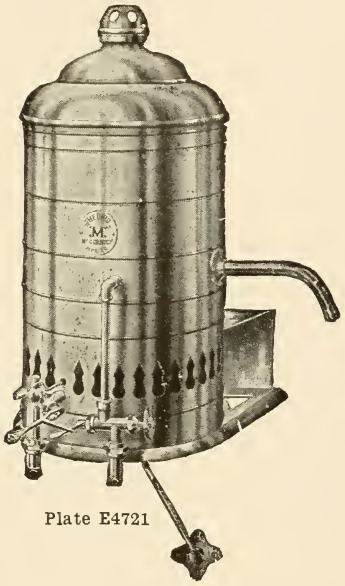


Plate E4721

STYLE "DAYTON C"
FOR GASOLINE

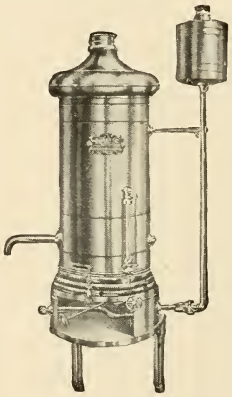


Plate E4722

STYLES "OHIO M" AND "OHIO A"

The "Ohio M" Heater is made for artificial and natural gas, and does away with the objectionable flue pipe and condensation pipe. As a consequence it eliminates expense, unsightliness and danger.

This heater is equipped with pilot light and safety valves, so that the burner cannot be lighted without opening the water valve.

The "Ohio A" Heater is made on the same principle as the "Ohio M," except the burner is arranged for acetylene gas. The capacity is about one half.

These heaters are made of 16 ounce copper and heavily nickel-plated.

Diameter Inches	Height Inches	Capacity per Minute Gallons	Weight Pounds	Price, Each	
				"Ohio M"	"Ohio A"
12	24	2 to 2½	24	**35.00**	**36.00**

Prices include shelf, bracket and unions.

In ordering, specify kind of gas to be used.

STYLE "DAYTON C"

This heater is constructed on the same general principle as the Style "Ohio M," except that it is adapted for gasoline and must have a vent pipe to carry away the products of combustion.

Diameter of Base Inches	Height Inches	Capacity per Minute Gallons	Weight Pounds	Price, Each	
				With Shelf, Brackets and Water Gauge	With Shelf and Brackets, no Water Gauge
12½	35	1½ to 2	50	**44.20**	**42.20**

HOFFMAN INSTANTANEOUS AUTOMATIC GAS WATER HEATERS

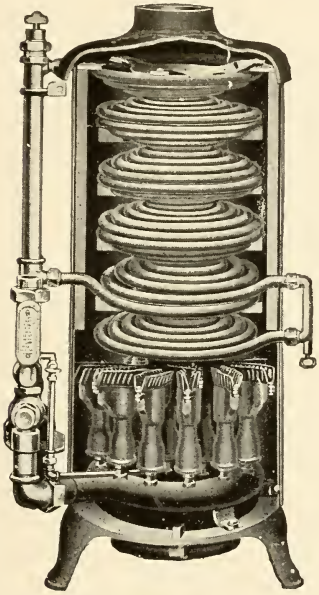


Plate E4731

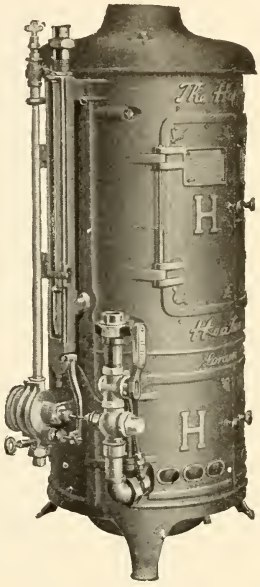


Plate E4732

The Hoffman is designed to develop the greatest possible efficiency consistent with economy in operation.

The heater has a double cast iron shell with 7/8-inch dead air space between the jackets. The double doors above and below are self-closing and the No. 4D and No. 6F are also equipped with double doors in the rear to give ready access to the rear of the coils. The top casting contains a deflecting plate which prevents down draft from blowing out the pilot.

The coils are of 18 gauge seamless drawn copper tubing, tested to 300 pounds pressure.

These heaters are equipped with a new and improved type of thermostat. It acts on the water valve instead of on the gas valve, thus reversing the action of the water valve by opening a port which throws the water pressure on the opposite side of the plunger, which drives it back to place, releasing the pressure from the gas valve, which is forced shut by this reversed action of the water valve.

No.	Capacity Gallons per Minute	Dimensions, Inches		Shipping Weight Pounds	Price Each
		Diameter	Height		
1½D	1½	10	32	100	65.00
2½D	2½	13	39	200	80.00
3D	3	15	41	250	110.00
4D	4	17	45	350	130.00
6F	6	19	49	500	180.00

HOT WATER STORAGE TANKS

HORIZONTAL OR VERTICAL

WITH OR WITHOUT STEAM COIL

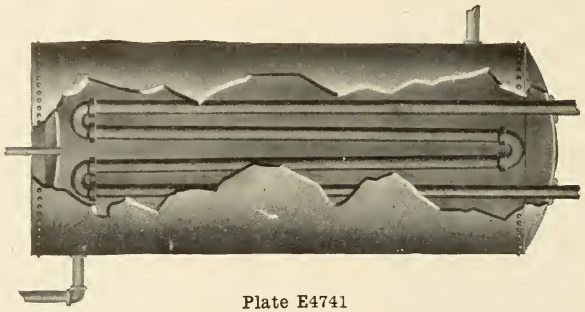


Plate E4741

All standard storage tanks are tested to a hydrostatic pressure of 100 pounds to the square inch and are guaranteed for a working pressure of 65 pounds per square inch.

Diam. Inches	Length Feet	Approx. Capacity Gallons	Standard Openings Inches	Price Tank Only	Number and Size of Coil Pipes	Price Black Coil	Price Galv. Coil
20	4	66	1½	87.00	4 pipes 1 in.	29.00	35.00
20	5	85	1½	94.00	4 " 1 "	30.50	38.50
24	4	100	1½	102.00	4 " 1¼ "	35.50	42.00
24	5	120	1½	112.00	4 " 1¼ "	37.00	45.00
24	6	140	1½	122.00	4 " 1¼ "	38.50	48.00
30	4	150	2	134.00	4 " 1¼ "	35.50	42.00
30	5	180	2	147.00	4 " 1¼ "	37.00	45.00
30	6	220	2	157.00	4 " 1¼ "	38.50	48.00
30	7	250	2	176.00	4 " 1¼ "	40.00	51.00
30	8	295	2	197.00	4 " 1¼ "	41.50	54.00
36	6	315	2	203.00	4 " 1½ "	51.00	62.00
36	7	365	2	228.00	4 " 1½ "	54.00	66.00
36	8	420	2	248.00	4 " 1½ "	57.50	70.00
36	10	525	2	288.00	4 " 1½ "	64.00	78.00
42	6	430	2	265.00	4 " 1½ "	51.00	62.00
42	7	500	2	290.00	4 " 1½ "	54.50	66.00
42	8	575	2	315.00	4 " 1½ "	57.50	70.00
42	10	720	2	363.00	4 " 1½ "	64.00	78.00
42	12	865	2	408.00	4 " 1½ "	70.50	85.00
42	14	1000	2	456.00	4 " 1½ "	77.00	93.00

Furnished with or without coils as ordered.

EXTRAS

Price, Manhole in Head.....each	30.00	Price, Flanged Openings, 2½ in., each	8.00
" " " Shell..... "	45.00	" " " 3 " "	9.00
" Handhole in Head.... "	8.00	" " " 3½ " "	9.00
" " " Shell..... "	8.00	" " " 4 " "	10.00
" Flanged Openings, 2-in. "	8.00	....	

EXTRA HEAVY HOT WATER STORAGE TANKS

HORIZONTAL OR VERTICAL

WITH OR WITHOUT STEAM COIL

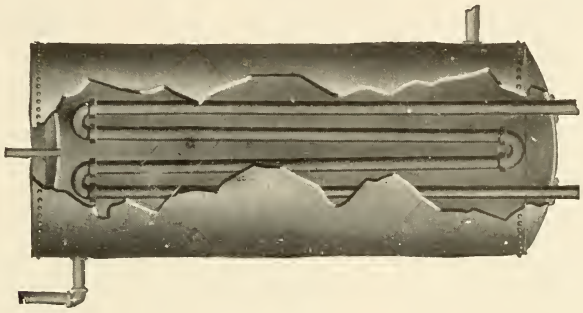


Plate E4751

All extra heavy storage tanks are tested to a hydrostatic pressure of 150 pounds to the square inch, and are guaranteed for a working pressure of 100 pounds to the square inch.

Diam. Inches	Length Feet	Approximate Capacity Gallons	Price Tank Only Black	Number and Size of Coil Pipes	Price Black Coil	Price Galv. Coil
24	5	120	**136.00**	4 Pipes 1¼ in.	**37.00**	**45.00**
24	6	140	**147.00**	4 " 1¼ "	**38.50**	**48.00**
30	5	180	**171.00**	4 " 1¼ "	**37.00**	**45.00**
30	6	220	**185.00**	4 " 1¼ "	**38.50**	**48.00**
30	7	250	**203.00**	4 " 1¼ "	**40.00**	**51.00**
30	8	295	**227.00**	4 " 1¼ "	**41.50**	**54.00**
36	6	315	**265.00**	4 " 1½ "	**51.00**	**62.00**
36	7	365	**301.00**	4 " 1½ "	**54.00**	**66.00**
36	8	420	**327.00**	4 " 1½ "	**57.50**	**70.00**
36	10	525	**385.00**	4 " 1½ "	**64.00**	**78.00**
42	6	430	**336.00**	4 " 1½ "	**51.00**	**62.00**
42	7	500	**367.00**	4 " 1½ "	**54.50**	**66.00**
42	8	575	**402.00**	4 " 1½ "	**57.50**	**70.00**
42	10	720	**466.00**	4 " 1½ "	**64.00**	**78.00**
42	12	865	**530.00**	4 " 1½ "	**70.50**	**85.00**
42	14	1000	**595.00**	4 " 1½ "	**77.00**	**93.00**
48	8	750	**510.00**	.....	.....	.....
48	10	940	**582.00**	.....	.....	.....
48	12	1130	**654.00**	.....	.....	.....
48	14	1300	**726.00**	.....	.....	.....
48	16	1500	**798.00**	.....	.....	.....
48	18	1700	**870.00**	.....	.....	.....

Furnished with or without coils as ordered.

EXTRAS

Price, Manhole in Head.....each	**30.00**	Price, Flanged Openings, 2½ in.each	**8.00**
" " " " Shell..... "	**45.00**	" " " 3 " "	**9.00**
" Handhole in Head..... "	**5.00**	" " " 3½ " "	**9.00**
" " " Shell..... "	**8.00**	" " " 4 " "	**10.00**
" Flanged Openings, 2 in.. "	**8.00**	.....	

WILKS
WATER HEATERS AND GARBAGE BURNERS

Nos. 1 TO 4

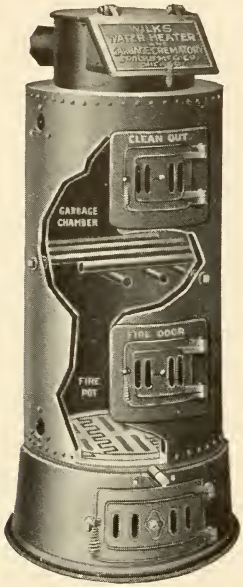


Plate E4761

Nos. 23 TO 10

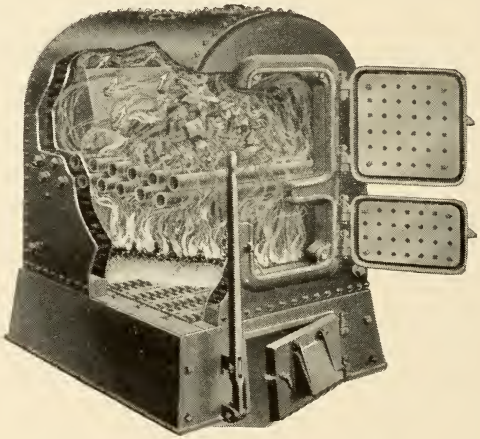


Plate E4762

These heaters are especially designed for heating water and burning garbage in residences, apartments, hotels, restaurants, hospitals, etc. They are made of heavy steel boiler plate and tested to 100 pounds hydrostatic pressure. The garbage grate is made of the best boiler tubing, the ends of which are expanded into the openings in the inner shell. This grate thus forms a part of the heating surface, there being a constant circulation of water through the tubes, which greatly increases the efficiency of the heater. In the outer shell, opposite the ends of the tubes, are cleanout plugs, which may be removed for cleaning out the tubes. Cleanouts are also provided at each corner end for removing sediment in the water jacket. Has large doors and rocking boiler grates.

Nos. 1 TO 4

No.	Tank Capacity Gallons	Size of Boiler Inches	Height Over All Inches	Size of Openings Inches	Size of Smoke Pipe Inches	Weight Pounds	Price Each
1	200	16x36	56	1½	7	550	**96.00**
2	300	20x42	64	2	8	825	**126.00**
3	400	24x42	66	2	8	950	**160.00**
4	500	30x48	72	3	8	1300	**210.00**

Nos. 23 TO 10

No.	Capacity per Hour Gallons	Height Over All Inches	Width Inches	Length Inches	Floor Space Inches	Size of Garbage Door Inches	Size of Fire Door Inches	Flow and Return Inches	Size of Smoke Pipe Inches	Weight Pounds	Price Each
23	500	56	24	24	30x30	15x16	10x16	2	8	1500	**215.00**
24	600	56	24	30	30x36	15x16	10x16	2	8	1600	**240.00**
5	800	56	30	30	36x36	15x16	10x16	3	9	1800	**260.00**
6	1000	56	30	36	36x42	15x16	10x16	3	9	2000	**290.00**
7	1200	56	30	42	36x48	15x16	10x16	3	10	2200	**320.00**
8	1300	56	36	36	42x42	15x16	10x16	3	10	2300	**350.00**
9	1400	56	36	42	42x48	15x16	10x16	3	10	2500	**400.00**
10	1500	56	36	48	42x54	15x16	10x16	3	12	2700	**440.00**

WILKS STEEL WATER HEATERS

SMALL SIZE, NOT SELF-FEEDING

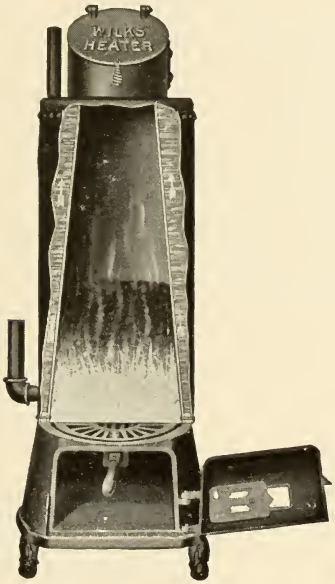


Plate E4771

WITH MAGAZINE, SELF-FEEDING

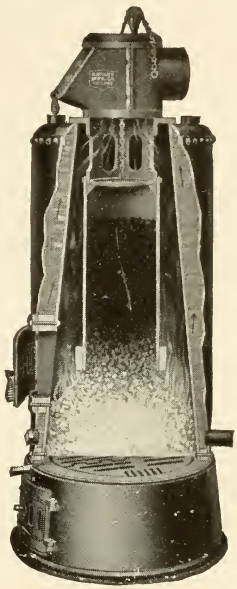


Plate E4772

Size of Boiler Inches	Price Each	Heating Per Hour, Gals.	Height Over All, Inches	Size of Openings, Inches	Size of Smoke Pipe, Inches	Weight, Pounds
*10x18	30.00	40	32	1	4	100
*12x24	36.00	65	43	1	5	160
*12x30	38.00	80	49	1	5	170
*14x30	44.00	100	49	1¼	5	200
*14x36	48.00	120	55	1¼	5	235
16x30	72.00	130	52	1½	5	400
16x36	76.00	150	58	1½	5	420
20x30	90.00	200	54	2	7	520
20x36	96.00	250	60	2	7	550
20x42	110.00	275	66	2	7	580
24x36	126.00	300	60	2	8	780
24x42	132.00	350	66	2	8	810
24x48	142.00	400	72	2	8	840
30x42	160.00	500	67	3	8	1100
30x48	168.00	600	73	3	8	1150
30x54	176.00	700	79	3	8	1240
36x42	224.00	900	68	3	9	1900
36x48	236.00	1000	74	3	9	2000
42x42	260.00	1200	69	3	9	2400
42x48	270.00	1400	75	3	9	2500

*Not self-feeding. Without fire door. All small sizes except 10 x 18 can be furnished with front fire door at 10.00 extra on list.

TANK HEATERS

IDEAL PREMIER

Plate E4781

IDEAL JUNIOR

Plate E4782

IDEAL ARCO

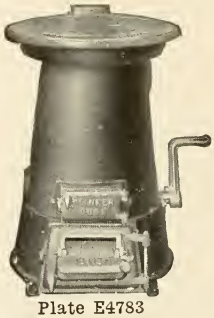


Plate E4783

IDEAL LAUNDRY

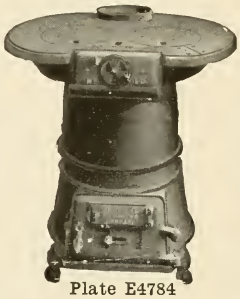


Plate E4784

IDEAL PREMIER TANK HEATERS

Number	*Tank Capacity Gallons	Outlets Inches	Height Inches	Diameter of Base Inches	Grate Area Sq. Feet	Smoke Collar Inches	Price Complete Each
101	144	1—1½	33⅛	18	.59	5	37.00
121	210	3—1½	41½	24	.84	6	65.00
122	231	3—1½	46¾	24	.84	6	77.00
151	336	3—2	47⅝	25¾	1.23	6	89.00
152	373	3—2	53⅝	25¾	1.23	7	106.00
181	600	3—2	50	27	1.92	7	118.00
182	660	3—2	57	27	1.92	7	138.00

IDEAL JUNIOR TANK HEATERS

00	56	1—1½	27⅝	15¼	.59	5	26.50
0	93	1—1½	34½	18	.54	5	34.00
A-10	192	3—1½	39	20¼	.80	6	57.00
A-12	210	3—1½	44½	20¼	.80	6	73.00
A-20	384	3—2	47⅞	22⅞	1.23	6	83.00
A-22	426	3—2	53¼	22⅞	1.23	6	102.00
A-30	600	3—2	47⅞	26¼	1.92	7	114.00
A-32	660	3—2	54¼	26¼	1.92	7	142.00

Nos. 00, 0, A-10, A-12, 101 and 1-D have slide center grates; all others have rocker grates. Nos. 122, 152, 182, A12, A22 and A32 equipped with dome section.

No. 00 regularly furnished with base plate and legs; can be furnished without at 25.00 list.

No. 101 is not provided with butterfly doors, but can be so equipped if specified None of these heaters has intermediate section.

IDEAL ARCO HEATERS

Number	*Tank Capacity Gallons	Inlets and Outlets Inches	Height Inches	Widest Diameter Inches	Grate Area Sq. Feet	Smoke Pipe Inches	Price Complete Each
10	81	1—1½	27½	16	.54	5	33.00
12	148	1—1½	28¼	19½	.80	5	37.00
15	242	1—1½	31	21	1.23	6	50.00

IDEAL LAUNDRY HEATERS

1-D	100	1—1	27	27½	.54	6	39.50

*The capacities of heaters above given indicates the amount of water in gallons which each heater will raise 25 degrees each consecutive hour for 8 hours on one full charge of hard coal. Detail measurements given when desired.

COMBINATION LAUNDRY AND TANK HEATERS

No. 1—WITH LEGS

Plate E4791

No. 2—WITH SUB-BASE

Plate E4792

This heater is two things in one: First, a laundry or small cook stove; second, a water tank heater for domestic supply. It performs the offices of both for less money than any similar appliance, because it saves fuel. It is a compact, well built heater that will cook the breakfast, heat irons or wash-boiler, and meanwhile heat water at the rate of 90 gallons per hour. No coils, no complicated mechanism of any kind, nothing to get out of order and absolutely no chance for an explosion as in the ordinary type of gas or gasoline heaters. The construction is perfectly simple, just a complete corrugated water jacket around the fire-pot. Of course there are lots of features which constant experimenting on our part have improved, ideas that only the oldest and most thoroughly experienced manufacturers could work out.

The following are some special points of superiority.

Corrugated fire pot, extra deep, not only increases heating surface and holds fire longer but also permits better air circulation, thereby consuming all the fuel.

Top large enough for either No. 8 or No. 9 wash-boiler.

Top frame and combustion chamber one piece so that gases cannot escape.

The four-piece top construction will not warp as one-piece construction will.

Feed door drops down into such a position that it cannot be broken. Hot coals and dust cannot fall upon the floor while fuel is being replenished. Note—This construction absolutely obviates the customary annoyance of broken feed doors.

Nothing but the base or legs comes in contact with the floor.

Sub-base is a special feature and may be attached to any heater. This allows several days' accumulation of ashes without danger of burning out the grate. A bed-plate can be furnished where heater is to be used on a non-fireproof floor. If it rests on concrete the bed-plate is not necessary.

All doors have patent nickel plated cold handles.

This is the only combination tank and laundry heater having a damper included in its equipment.

A diaphragm is cast in the water-body and so arranged that the circulation is positive at all times; the cold water enters at the bottom, is deflected by the diaphragm and must pass entirely around the fire pot before leaving the heater.

A nickel plated malleable combination lifter and shaker is furnished with each heater.

Last but not least, one bucket of coal a day will operate it under ordinary circumstances.

Price, No. 1 Heater with Legs	each	20.00
" " 2 " " Sub-Base	"	24.00
" Bed Plate, Extra	"	2.75

Heat Accelerator for Sad Irons, extra 1.50, net.

DIAMOND UNIVERSAL SLOP SINKS

EXTRA HEAVY **TIGHT WASTE CONNECTION**

A general dumping sink for laundries, basements, cesspools, cellar traps and stables.

One sink is used with different trimmings to make a stable cesspool, a sewer trap and slop sink, and a slop sink with strainer basket.

By using this sink a perfect joint can be made. In using cast iron soil pipe, the outlet of the sink can be slipped over the soil pipe and a calked joint can be made between the soil pipe and the outlet of the sink, the same as any other calked joint can be made, as the workman makes the joint from the inside of the sink and has the full size of the sink in which to operate. In using wrought iron pipe the outlet of the sink is screwed for iron pipe, in this way making the same joint as with ordinary wrought iron pipe.

One sink body of any size will make either slop sink, stable cesspool or slop sink with basket strainer by using the different strainers or grates. The water seal is perfect and permanent, as the bell is cast solid to the strainer. Trimmings or parts of various sinks of the same size will interchange.

WITH PLAIN STRAINER

TO CALK

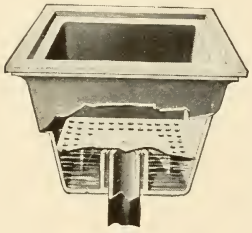


Plate E4801

TO SCREW

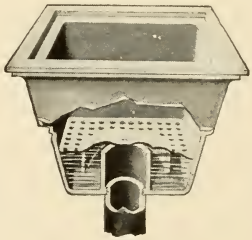


Plate E4802

Size Square at Top.....inches	12x12	14x14	16x16	16x16
" of Soil Pipe or Wrought Pipe..... "	2	2	2	4
Price, to Calk or Screw.....each	**2.50**	**3.00**	**3.50**	**3.50**

WITH BASKET STRAINER

TO CALK

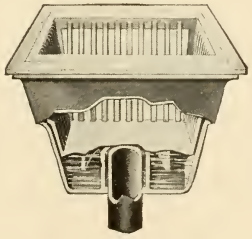


Plate E4803

TO SCREW

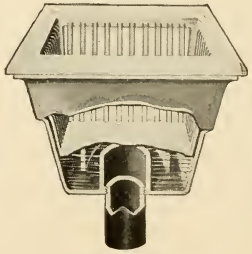


Plate E4804

Size Square at Top.....inches	12x12	14x14	16x16	16x16
" of Soil Pipe or Wrought Pipe..... "	2	2	2	4
Price, to Calk or Screw.....each	**3.00**	**3.50**	**4.00**	**4.00**

DIAMOND UNIVERSAL SLOP SINKS

These are other modified forms of the Diamond Universal Slop Sink as described on preceding page. The one sink with the various trimmings make up the different styles.

STABLE CESSPOOLS

TO CALK

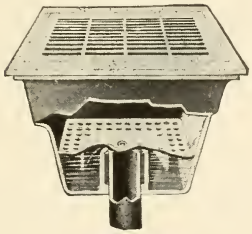


Plate E4811

TO SCREW

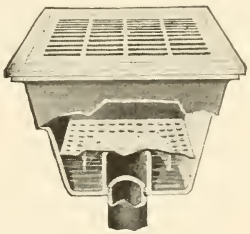


Plate E4812

TO CALK

Size Square at Top.....inches	12x12	14x14	16x16	16x16
" of Soil Pipe..... "	2	2	2	4
Price.....each	**3.75**	**4.00**	**4.50**	**4.50**

TO SCREW

Size Square at Top.....inches	12x12	14x14	16x16	16x16
" of Wrought Iron Pipe..... "	2	2	2	4
Price.....each	**3.75**	**4.00**	**4.50**	**4.50**

CELLAR TRAP

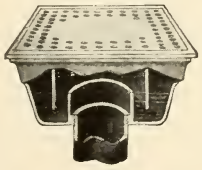


Plate E4813

CESSPOOL

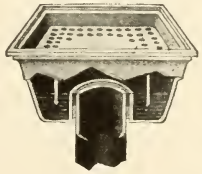


Plate E4814

Size Square at Top.....inches	6x6	10x10	10x10
" of Wrought Pipe..... "	1½	2	....
" " Soil Pipe..... "	...	....	2
Price, Cellar Traps.....each	**1.00**	**2.00**	**2.00**
" Cesspools..... "	....	**2.00**	**2.00**

The 10x10 size of both cellar traps and cesspools can be furnished for either 2-inch wrought pipe or soil pipe as ordered.

FLOOR DRAINS

DIAMOND FLOOR DRAIN

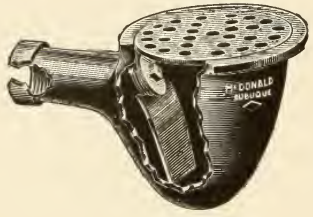


Plate E4821

WILLETT'S PATTERN CESSPOOL

Plate E4822

DIAMOND FLOOR DRAINS

Diamond Floor Drain is intended for use in cement and tile floors, being commonly used in cellars, basements, laundries, etc. It is a substantial article, made of cast iron, and painted. Weight, 18 pounds.

BODY is 8 inches in diameter and 8 inches deep. The total length over all is 12 inches **STRAINER** is 6½ inches diameter, and fits flush with the top of body without the use of bolts, so its removal is easy.

OUTLET is 2 inches, and being horizontal permits the waste pipe to be run close to the floor. It is tapped on the inside for 2-inch wrought pipe, while outside measurement is proper size to calk into the hub of 2-inch soil pipe and fittings, thus adapting it for use with either wrought pipe or soil pipe.

BRASS CLEANOUT is screwed into the body of drain, and its removal permits the use of a cleaning rod or wire in case of stoppage of waste pipe.

Price to Calk only	each	**3.00**
" " or Screw	"	**3.30**
Add for Finished Brass Strainer	"	**2.00**

WILLETT'S PATTERN CESSPOOLS

This is a popular cesspool for use in cellars and cement floors. Outlet has hub to fit 4-inch soil pipe, and, being horizontal, permits the waste pipe to be run close to the floor.

It is furnished with double strainer as shown, but can be ordered with single strainer only if desired, in which event order should specify whether top or bottom strainer is the one desired.

The strainers fit into the body of the cesspool without the use of bolts or screws, so they are easily and quickly removed for cleansing, etc. The upper strainer is flush with the top while the lower strainer, being 1½ inches below top of cesspool, permits its use as a satisfactory slop hopper.

Diameter, 10 inches; depth, 9 inches; outlet, 4-inch soil pipe, hub end.

Price With Double Strainer	each	**3.50**
" " Single "	"	**3.00**
Add for Finished Brass Strainer	"	**2.00**

CESSPOOLS AND FLOOR DRAINS

CAST IRON CESSPOOLS WITH BELL TRAP

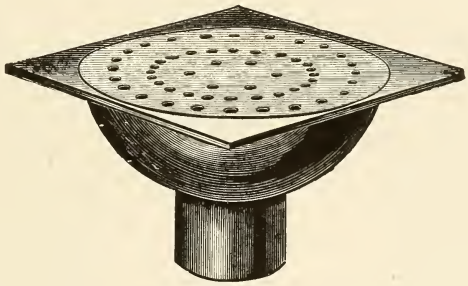


Plate E4831

These cesspools are heavy cast iron, with bell attached to the strainer, making a good water seal. The outlet end fits into the hub of soil pipe or soil pipe fittings.

They can be furnished with brass strainer or all brass, rough, polished or nickel-plated, at special prices.

Size Square ..... inches	6x6	9x9	13x13
" Soil Pipe ..... "	2	3	4
Price ..... each	.70	.85	1.50

IMPROVED STANDARD DRY PAN FLOOR DRAINS

(Patented)

PLAIN

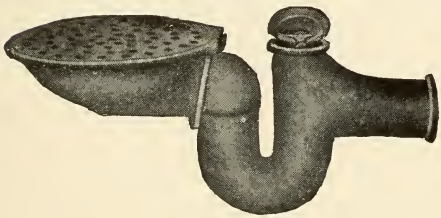


Plate E4832

WITH BACK WATER VALVE

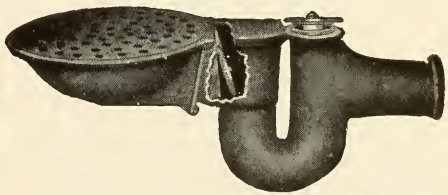


Plate E4833

PLAIN DRAINS

These are constructed with quick detachable cleanouts. Are recommended for all ordinary purposes. Furnished with square pan if desired.

Size of Pan ..... inches	10	10	14
" " Outlet ..... "	2	3	4
Price ..... each	4.50	6.00	9.00
Add for Extra Heavy Cover ..... "	.60	.60	1.00

WITH BACK WATER VALVE

In addition to the quick detachable cleanout these drains are fitted with a back water valve which also shuts off evaporation between the trap and pan.

Size of Pan ..... inches	10	10	14
" " Outlet ..... "	2	3	4
Price ..... each	8.00	9.00	12.00
Add for Extra Heavy Cover ..... "	.60	.60	1.00

JOSAM FLOOR DRAINS

U. S. GOVERNMENT TYPE JOSAM DRAIN No. 203

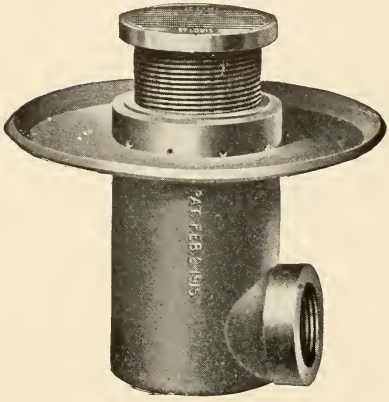


Plate E4841

JOSAM U. S. GOVERNMENT TYPE COMBINED TRAP AND DRAIN No. 203A

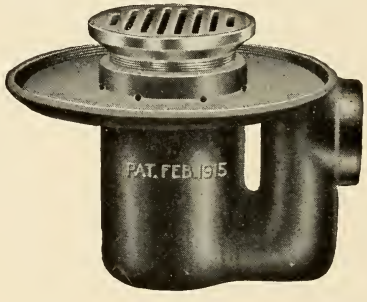


Plate E4842

U. S. Government type has cast iron body and nickel-plated adjustable strainer and collar. Suitable for concrete, tile or marble floors. Depth 8 inches.

Size of Strainer..... inches	4	4	5	5	5	6	6	6
" " Outlet..... "	1½	2	1½	2	3	1½	2	3
Price, No. 203	....	11.00	....	12.00	....	....	13.00	....
" " 203A.....	10.50	11.50	11.50	12.00	15.00	12.50	13.00	16.00

JOSAM DRAIN WITHOUT TRAP

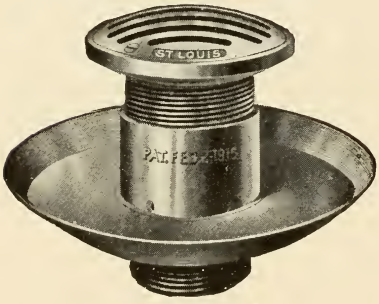


Plate E4843

ROOF DRAIN FOR CONCRETE ROOF

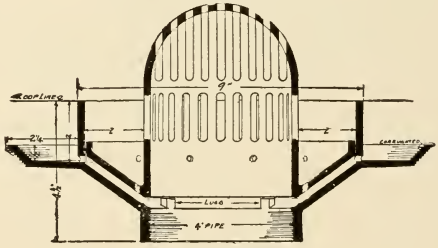


Plate E4844

FLOOR DRAINS WITHOUT TRAP

The Josam Drain without trap is suitable for marble, tile or concrete floors where trap is not permissible or desired. Body is cast iron with nickel-plated strainer.

Size of Strainer ..... inches	4	5
" " Outlet for Iron Pipe..... "	2	3
Price..... each	6.80	9.60

CAST IRON ROOF DRAINS, FOR CONCRETE ROOF

These are all cast iron, threaded for iron pipe. Provided with detachable sediment cup which catches all leakage and sediment.

Size ..... inches	4	5	6	7	8
Price, for Iron Pipe..... each	12.00	14.00	16.00	18.00	20.00

BLAKE FLOOR DRAINS

(Patented)

BLAKE JUNIOR COMBINED FLOOR DRAIN AND TRAPS

FOR CAST IRON PIPE

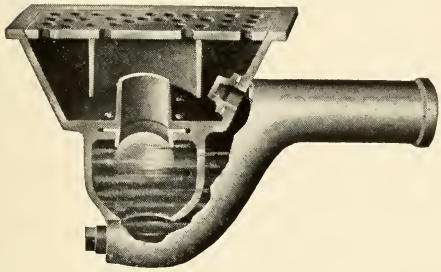


Plate E4851

SCREWED FOR WROUGHT PIPE

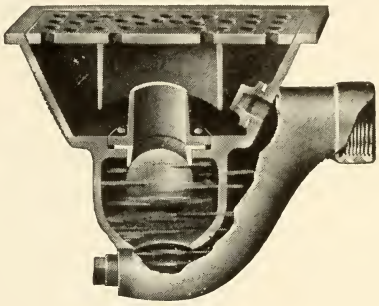


Plate E4852

The large grate surface with special air inlet, bottom flushing arrangement, accessible rodding, full capacity waterways and positive "easy-to-get-at" back water valve features are worthy of the highest consideration.

Size of Connection.....inches	2	3	4
Size of Top.....inches	11¼x11¼	12x12	17x17
Depth..... "	9	12½	16
Price, with Cast Iron Cover, for Cast or Wrt. Pipe..each	7.00	12.00	18.00

BLAKE JUNIOR FLOOR DRAIN WITHOUT BACK WATER VALVE FOR WROUGHT PIPE

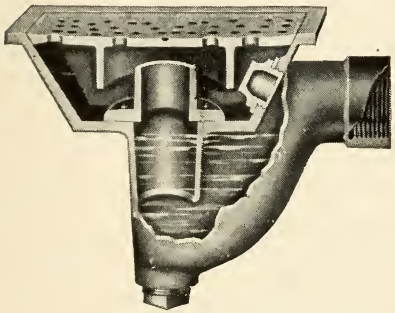


Plate E4853

ROCK ISLAND FLOOR DRAIN WITH BACK WATER VALVE

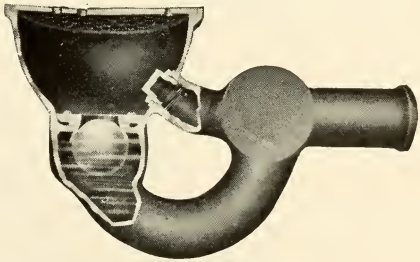


Plate E4854

BLAKE JUNIOR FLOOR DRAINS

Size of Connection.....inches	2	3	4
Size of Cover.....inches	10x10	12x12	17x17
Depth..... "	9	12½	16
Price, with Cast Iron Cover, for Cast or Wrt. Pipe..each	3.50	7.00	12.00

ROCK ISLAND FLOOR DRAINS

Size of Connection.....inches	2
Size of Top.....inches	8½
Depth..... "	10
Length..... "	17
Price, with Cast Iron Cover with Back Water Valve.....each	5.00
" " " " " without Back Water Valve..... "	3.00

VAULT, SEWER AND MANHOLE COVERS

CISTERN OR VAULT COVER WITH FRAME

Plate E4861

Diameter outside, 25½ inches; inside, 20 inches; depth, lower flange, 5½ inches. Weight, ring only, 56 pounds; cover only, 37 pounds.

Complete.....each **7.00** Cover only.....each **3.50**

SEWER AND MANHOLE COVER WITH FRAME

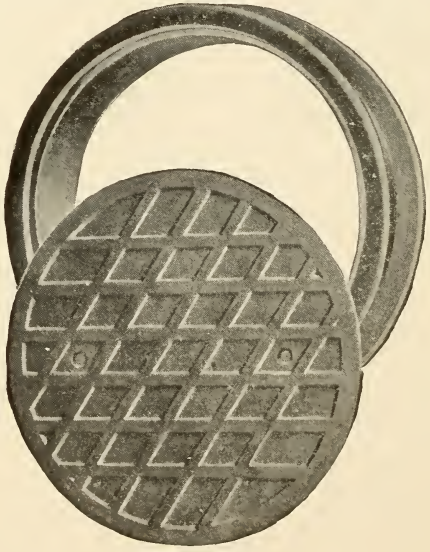


Plate E4862

Diameter of opening, 24 inches; projection of flange, 2 inches; height above flange, 7 inches. Weight, ring only, 174 pounds; cover only, 154 pounds.

Complete.....each **22.00** Cover only.....each **13.00**

TRENCH PLATES AND TREADS

McDONALD TRENCH PLATES

CAST IRON

These are made in four widths, 8, 12, 24 and 26 inches, in sections about 3 feet long. They are used to cover a trench or gutter in cement floors, in which steam, water or waste pipes are laid.

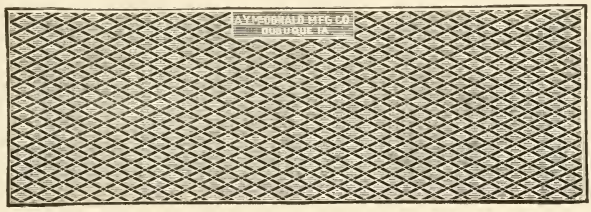


Plate E4871

Width of Plate.....inches	8	12	24	26
Weight of each Running Foot.....pounds	8½	10½	23	55
Price, for each Foot in Length.....	**1.00**	**1.20**	**3.00**	**7.00**

McDONALD STAIR TREADS

CAST IRON TO SCREW TO WOODEN TREADS

Our own experience of many years enables us to recommend our Cast Iron Stair Treads for use in warehouses and factories. Stairs with Cast Iron Treads screwed to the Wooden Tread of the stairs will last almost forever. We have patterns for two sizes, 8¼ inches wide by 37 inches long, and the other is 8¼ inches wide by 47 inches long.

The 8¼x47-inch tread has a lip projecting down on the front edge.

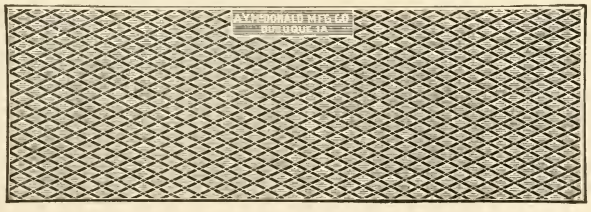


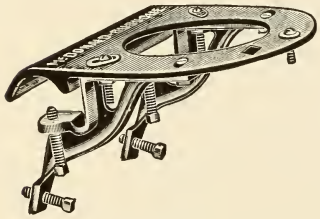
Plate E4872

Size of Tread.....inches	8¼x37	8¼x47
Weight of Each.....pounds	28	32
Price.....each	**3.00**	**3.75**

PUMP AND SINK BRACKETS

DIAMOND KITCHEN SINK PUMP BRACKET

TO ATTACH PITCHER SPOUT AND SMALL HOUSE FORCE PUMPS TO FLAT OR ROLL RIM SINKS



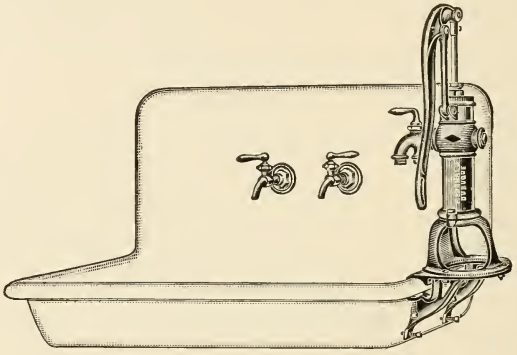


Plate E4881

This pump bracket, attached to any roll rim or flat rim sink, avoids the use of an unsanitary wooden shelf. Thin pieces of leather or rubber placed under bracket prevent damage to the sink rim. By adjusting the two set screws in the lower extension arms, the surface of the bracket can be brought to a satisfactory level, regardless of irregularities or unevenness of the side of the sink.

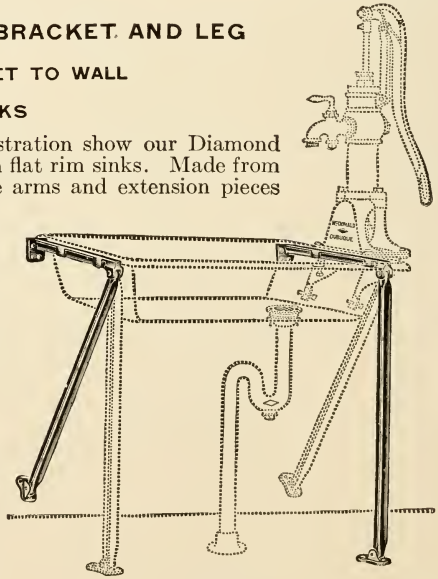
Pitcher spout pumps Nos. 1, 2 and 3 and house force pumps with bases the same as on pitcher spout pumps, will fit on these brackets. **NEAT, SIMPLE, COMPACT** and **STRONG.** Furnished either painted, galvanized, painted white enamel or porcelain enameled.

Price, Painted	each		2.50
" Galvanized	"		3.00
" Painted White Enamel	"		3.00
" Porcelain Enameled	"		3.50

DIAMOND COMBINATION SINK BRACKET AND LEG

LEG TO FLOOR OR BRACKET TO WALL

FOR FLAT RIM SINKS



The heavy or shaded parts of above illustration show our Diamond combination sink bracket and leg, for use with flat rim sinks. Made from strong mixture of cast iron, cast T shape, the arms and extension pieces are substantial and rigid.

Being **HINGED** at both ends of the leg or supporting arm, they can be used as legs or wall brackets as shown. The lower flange being hinged, is easily adapted to any surface and when used as a wall bracket, the unevenness of wall or wainscoting does not affect the bracket.

This bracket permits the use of the pump bracket, as the arms of the sink bracket do not interfere at all with the attachment of the pump bracket and pump as shown in the dotted lines or outline in the illustration.

Price, Painted	per pair	1.50
" Painted White Enamel	"	2.25
" Galvanized	"	2.25

Plate E4882

SINK FITTINGS

DIAMOND SINK BRACKET

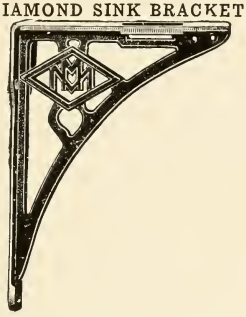


Plate E4891

SINK BOLTS

Plate E4892

DIAMOND CAST IRON SINK BRACKETS

These brackets are 13½ inches by 17½ inches high, and are very strong, not like the cheap light brackets. The slot on the top of the bracket is very convenient, as it does not require such accurate drilling of the rim of sink. Suitable for sinks from 14 to 22 inches wide.

Price, Plain or Painted	per pair	.80
" Galvanized	"	1.50
" Painted White Enamel	"	1.50

BRASS SINK BOLTS

Price, Long, with Two Iron Nuts	per dozen	.50
" Short " One " Nut	"	.35
Add for Nickel-plated Heads	"	.20

OPEN SINK STRAINER

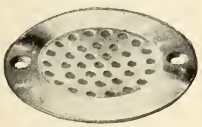


Plate E4893

PLUG SINK STRAINER

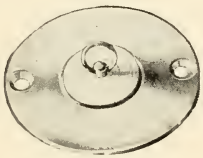


Plate E4894

SINK COLLAR FOR LEAD PIPE

Plate E4895

SINK COLLAR FOR IRON PIPE

Plate E4896

SINK STRAINERS

Description	Painted	Enameled	Polished Brass	Brass, Nickel-plated
Price, Open Strainers, per dozen	1.25	2.25	3.75	4.00
" Plug Strainers, "	3.50	5.00	7.00	8.00
" Extra, if with Bolts and Nuts "	.50	.50	.50	.50

SINK COLLARS

Price, for 1¼ or 1½-inch Lead Pipe	per dozen	1.25
" " 1¼, 1½ or 2-inch Iron Pipe	"	3.60

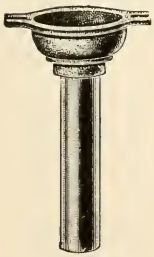


Plate E4897

NICKEL-PLATED SINK COLLAR WITH BRASS SLIP TUBE

These bolt to the sink and the brass slip tube is connected to the slip joint top at the top of either iron or brass traps.

Outside Diameter of Brass Slip Tube	inches	1¼	1½
Price, with N. P. Iron Collar	each	.70	.70
" " " Brass "	"	.90	.90

DIAMOND CAST IRON TRAPS

On the following pages are shown our line of **DIAMOND CAST IRON TRAPS**, which are used extensively in connection with all kinds of plumbing fixtures, such as bath tubs, lavatories, sinks, laundry tubs, etc.

We are the original makers of a line of cast iron traps of approved designs, threaded for iron pipe, and an inspection of the range of styles and sizes shown here will show that we have traps to meet almost every requirement.

DIAMOND CAST IRON TRAPS are made from high grade, close grain cast iron, very smooth inside and outside. They are superior to lead traps in every way, and are really as serviceable as brass traps and cost much less. They are nicely **PAINTED,** modest in price, and easy to install.

All these traps are threaded for iron pipe, so waste pipes can be regular wrought pipe, with regular fittings or drainage fittings.

DEEP SEAL. All our S and P traps have a water seal more than 2 inches deep.

SINK TRAPS AND CONNECTIONS

In the S and ½ S traps are shown some with the bell or funnel inlet, which are fastened to the sink by means of the ordinary iron sink collar, which was universally used until a short time ago; the sink collar slipping over the trap and engaging the bell or funnel inlet. We also show our Traps with **NICKEL-PLATED SLIP JOINT NUTS** at the **INLET END** of **TRAP,** and are having an extensive sale on these in connection with the **NEW STYLE SINK STRAINER,** which has a **NICKEL-PLATED BRASS TUBE** for **WASTE CONNECTION.**

LAVATORY TRAPS AND CONNECTIONS

Any of our Diamond S, ½ S or Bottle Traps which have nickel-plated slip joint nut make good traps for lavatories, the nut at top of trap making a slip joint connection with the ferrule on basin plug. If desired, we will furnish the basin or lavatory plugs with the traps, As the ferrule or tube on basin plugs vary in size, it is advisable to give outside diameter of this tube so that slip joint nut will have proper size of hole and rubber washer to make a tight joint.

LAUNDRY TUB TRAPS

We show a large variety of 2-inch and 1½-inch traps, some of which will meet any reasonable requirement.

BATH TRAPS AND DRUM TRAPS

There are several styles of bath traps shown, with views showing method of installing.

Our Rival Drum Traps are a decided improvement over the standard cast iron drum trap, as the partition or intercepter gives a positive seal between outlet of trap and nickel-plated cover, while in the standard drum trap there is great responsibility on the washer under cover as it must make a perfect joint to keep out sewer gas, etc.

All our iron drum traps have nickel-plated brass covers with wide flange. These covers are threaded with 3-inch pipe thread where they screw into the body of trap. The advantage of this 3-inch pipe thread is that it is coarse, 8 threads to the inch, and will not strip threads as easily as the fine threads commonly used. And it also permits the use of a common 3-inch pipe plug for use in the interval between roughing in and finishing, as well as for testing.

There is a very large increase in the use of cast iron drum traps, and they are rapidly displacing lead drum traps.

GREASE TRAPS

Several styles of grease traps are shown. There is a growing demand for grease traps, as they are valuable in keeping grease out of waste pipes and sewers.

ALL BRASS TRAPS

All brass traps can be furnished in any or all of the styles and sizes of cast iron traps. They will be heavy, as they will be made from the same patterns as the iron traps. There is considerable demand for all brass drum traps in some sections. Prices on all brass traps will be quoted on application.

DIAMOND CAST IRON TRAPS

WITH CAST FLOOR FLANGE

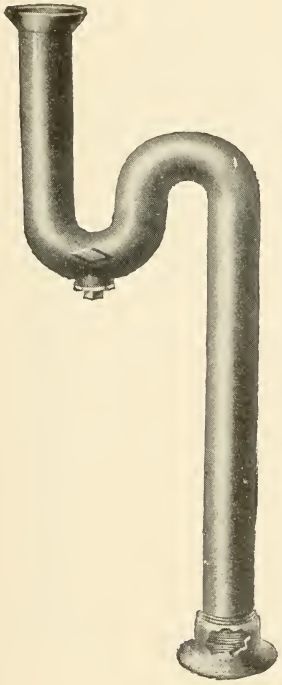


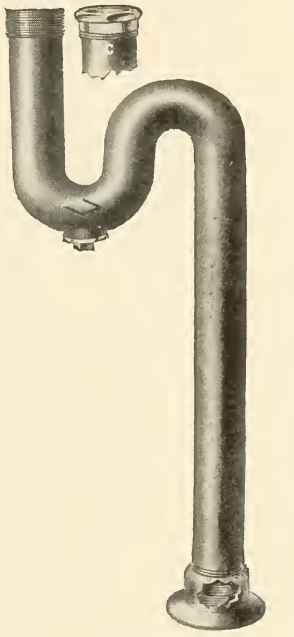
Plate 4000

Plates 4000, 4004, 4004C, length over all about two feet, floor flange giving an adjustment of about one inch. Fitted with brass cleanout screw, and threaded for iron pipe.

PLATE 4000

Regular iron sink collar for lead pipe slips over this trap, engaging the bell end at top to fasten trap to sink.

Size.....inches	1¼	1½
Price, Painted.....each	1.50	2.00
" Galvanized..... "	2.25	2.90
" Painted White Enamel.....each	2.25	2.90



Plates 4004 and 4004C

PLATE 4004

Threaded male iron pipe at top.

Size.....inches	1¼	1½
Price, Painted.....each	1.50	2.00
" Galvanized..... "	2.25	2.90
" Painted White Enamel.....each	2.25	2.90

PLATE 4004C

Has nickel-plated slip joint nut to fit 1¼-inch waste tube on 1¼-inch traps, and to fit either 1¼ or 1½-inch waste tubes on 1½-inch traps, but is sent for 1½-inch tube unless otherwise ordered.

Size.....inches	1¼	1½
Price, Painted.....each	1.75	2.30
" Galvanized..... "	2.50	3.20
" Painted White Enamel.....each	2.50	3.20

DIAMOND CAST IRON TRAPS

WITH VENT AND CAST FLOOR FLANGE

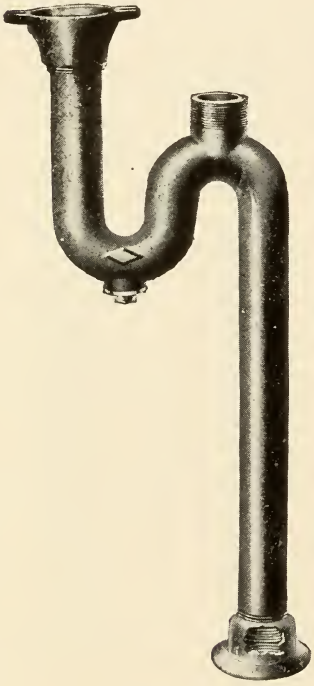
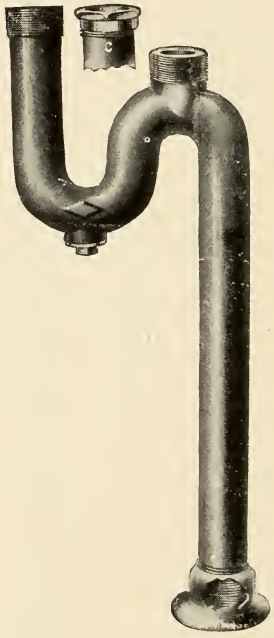


Plate 4008



Plates 4012 and 4012C

Plates 4008, 4012 and 4012C length over all about two feet, floor flange giving adjustment of about one inch. Fitted with brass cleanout screw, and threaded for iron pipe. Vent is threaded for 1¼-inch pipe.

PLATE 4008

This trap has a sink collar for iron pipe screwed on upper end to fasten it to sink.

Size.....inches	1¼	1½
Price, Painted.....each	2.25	2.75
" Galvanized..... "	3.00	3.65
" Painted White Enamel.....each	3.00	3.65

PLATE 4012

This trap is threaded male iron pipe at top.

Size.....inches	1¼	1½
Price, Painted.....each	2.05	2.55
" Galvanized..... "	2.80	3.45
" Painted White Enamel.....each	2.80	3.45

PLATE 4012C

Has nickel-plated slip joint nut to fit 1¼-inch waste tube on 1¼-inch traps, and to fit either 1¼ or 1½-inch waste tubes on 1½-inch traps, but is sent for 1½-inch tube unless otherwise ordered.

Size.....inches	1¼	1½
Price, Painted.....each	2.30	2.85
" Galvanized..... "	3.05	3.75
" Painted White Enamel.....each	3.05	3.75

2-INCH DIAMOND CAST IRON TRAPS

WITH CAST FLOOR FLANGE

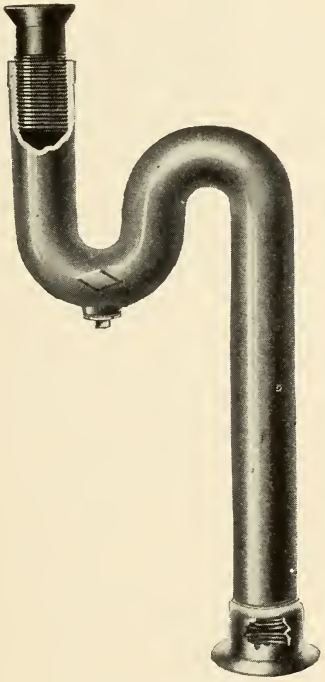


Plate 4016

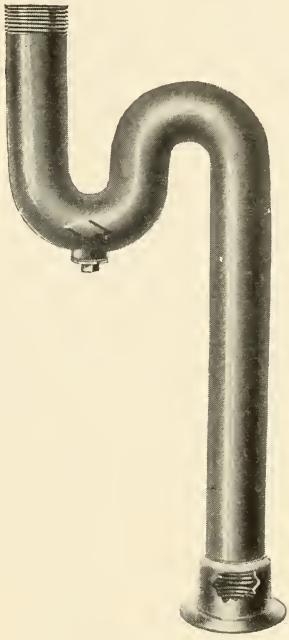


Plate 4020

Plates 4016 and 4020. Length over all about two feet, floor flange giving adjustment of about one inch.

Fitted with brass clean-out screw, and threaded for 2-inch iron pipe.

Can be furnished with vent, threaded male for 1¼-inch iron pipe.

PLATE 4016

This trap has an adjustable inlet, with 2-inch adjustment, which screws into top of trap with a 1½-inch pipe thread, permitting the use of a regular iron sink collar for lead pipe to attach trap to sink.

It can be furnished without the adjustable inlet, when it is desired to be used with 1½-inch female thread inlet.

Size, Iron Pipe	inches	2
Price, Painted	each	**3.50**
" Galvanized	"	**4.75**

If without adjustable inlet, deduct .25.

If with vent, threaded for 1¼-inch pipe, add .75.

PLATE 4020

As shown, this trap is threaded at top for 2-inch pipe.

Size, Iron Pipe	inches	2
Price, Painted	each	**3.25**
" Galvanized	"	**4.50**

If with vent, threaded for 1¼-inch pipe, add each .75.

If with nickel-plated slip joint nut to fit 1½ or 2-inch outside diameter tail piece, add each .45.

DIAMOND CAST IRON SHORT S TRAPS

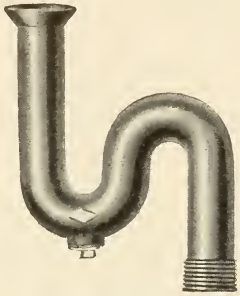
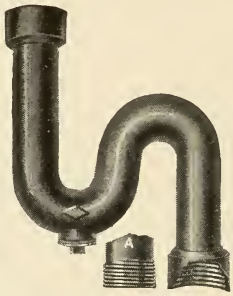


Plate 4024

These traps have brass clean-out screw, and are threaded for iron pipe. They can be furnished with vent threaded for 1¼-inch iron pipe.



Plates 4028 and 4028A

PLATE 4024

Regular iron sink collar slips over this trap, engaging the bell end at top to fasten trap to sink.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.00	1.35
" Galvanized..... "	1.50	2.00
Add for 1¼-inch Vent.. "	.75	.75

PLATE 4028

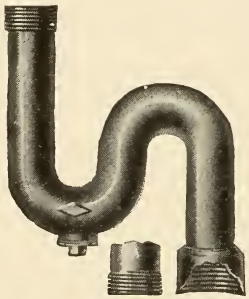
This trap is threaded female at both inlet and outlet.

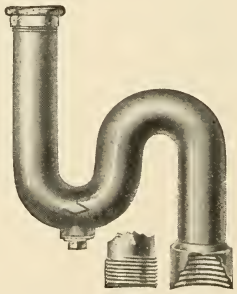
Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.25	1.60
" Galvanized..... "	1.75	2.25
Add for 1¼-inch Vent.. "	.75	.75

PLATE 4028A

Plate 4028A has female inlet and male outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.15	1.50
" Galvanized..... "	1.65	2.15
Add for 1¼-inch Vent.. "	.75	.75





These traps have brass clean-out screw, and are threaded for iron pipe. They can be furnished with vent threaded for 1¼-inch iron pipe.

PLATES 4032 AND 4032A

Plate 4032 has male inlet and female outlet.

Plate 4032A has male inlet and male outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, 4032, Painted...each	1.15	1.50
" 4032, Galvanized "	1.65	2.15
" 4032A, Painted... "	1.00	1.35
" 4032A, Galvanized "	1.50	2.00
Add for 1¼-inch Vent.. "	.75	.75

PLATES 4036 AND 4036A

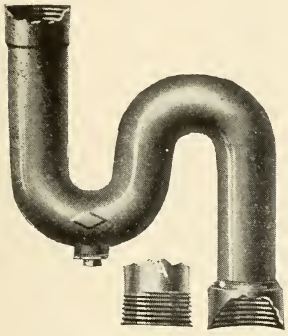
Plate 4036 has female outlet and nickel-plated slip joint nut inlet.*

Plate 4036A has male outlet and nickel-plated slip joint nut inlet.*

Size, Iron Pipe.....inches	1¼	1½
Price, 4036, Painted....each	1.40	1.80
" 4036, Galvanized. "	1.90	2.45
" 4036A, Painted.. "	1.25	1.65
" 4036A, Galvanized "	1.75	2.30
Add for 1¼-inch Vent.. "	.75	.75

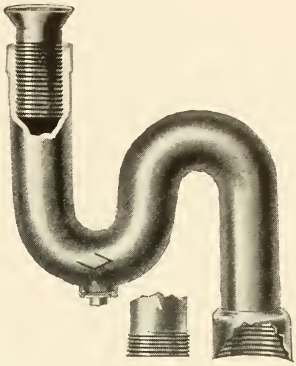
*The nickel-plated slip joint nuts are furnished to fit 1¼-inch waste tubes on 1¼-inch traps, and to fit either 1¼ or 1½-inch waste tubes on 1½-inch traps, but are sent to fit 1½-inch tubes unless otherwise ordered.

2-INCH DIAMOND CAST IRON SHORT S TRAPS



These traps have brass cleanout screw, and are threaded for iron pipe.

They can be furnished with vent threaded for 1¼-inch pipe.



PLATES 4040 AND 4040A

PLATE 4040

With 1½-inch female inlet and 2-inch female outlet.

Price, Painted	each	2.25
" Galvanized	"	3.25

PLATE 4040A

With 1½-inch female inlet and 2-inch male outlet.

Price, Painted	each	2.00
" Galvanized	"	3.00

PLATES 4044 AND 4044A

PLATE 4044

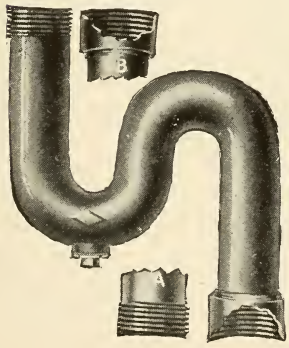
Has female outlet and adjustable inlet which has 2-inch adjustment and permits the use of the regular iron sink collar to attach trap to sink.

Price, Painted	each	2.50
" Galvanized	"	3.50

PLATE 4044A

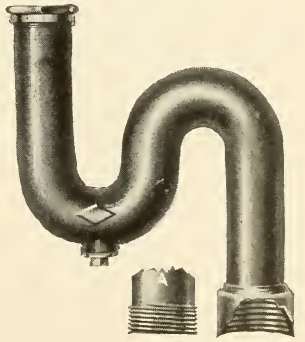
Has male outlet, and same adjustable inlet as shown.

Price, Painted	each	2.25
" Galvanized	"	3.25



These traps have brass cleanout screw, and are threaded for 2-inch iron pipe.

They can be furnished with vent threaded for 1¼-inch pipe.



PLATES 4048, 4048A AND 4048B

Plate 4048 has 2-inch male inlet and female outlet.

Plate 4048A has 2-inch male inlet and outlet.

Plate 4048B has 2-inch female inlet and outlet.

Plate Number	4048	4048A	4948B
Price, Painted ..each	2.25	2.00	2.50
" Galvanized "	3.25	3.00	3.50

PLATES 4052 AND 4052A

Plate 4052 has female outlet and nickel-plated slip joint nut inlet.

Plate 4052A is same except with male outlet.

Plate Number	4052	4052A
Price, Painted ..each	2.70	2.45
" Galvanized "	3.70	3.45

N. P. slip joint nut furnished to fit 2-inch or 1½-inch O. D. waste tube as ordered.

DIAMOND UNIVERSAL CAST IRON TRAPS

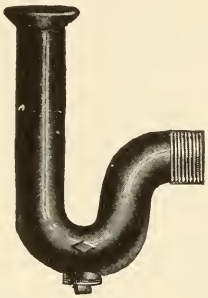


Plate 4056

These traps have brass clean-out screw, and are threaded for iron pipe.

Use of a tee on outlet end provides vent, when desired.

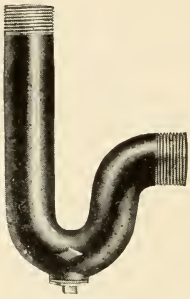


Plate 4060

Regular iron sink collar slips over this trap, engaging the bell end at top to fasten trap to sink.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	.75	1.00
" Galvanized..... "	1.15	1.50

This trap has male iron pipe threads at both ends, as shown.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	.75	1.00
" Galvanized..... "	1.15	1.50

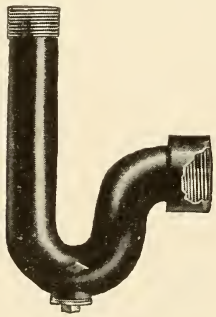
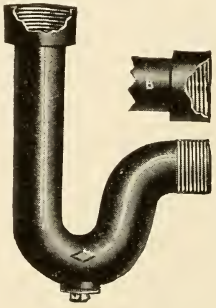


Plate 4064

These traps have brass clean-out screw, and are threaded for iron pipe.



Plates 4068 and 4068B

PLATE 4064

This trap has male inlet and female outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	.90	1.15
Galvanized..... "	1.30	1.65

PLATE 4068

Has female inlet and male outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	.90	1.15
" Galvanized..... "	1.30	1.65

PLATE 4068B

Has female inlet and outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.00	1.25
" Galvanized..... "	1.40	1.75

DIAMOND UNIVERSAL CAST IRON TRAPS

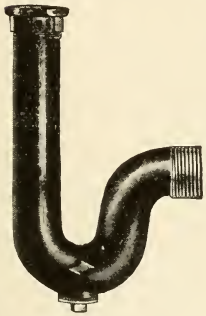


Plate 4072

These traps have brass clean-out screw, and are threaded for iron pipe.

Nickel-plated slip joint nut at top fits waste tubes of sinks, etc., on 1¼-inch trap fitting 1¼-inch waste tube, and on 1½-inch trap fitting 1½ or 1¼-inch waste tube, as ordered, but are regularly sent to fit 1½-inch waste tube.

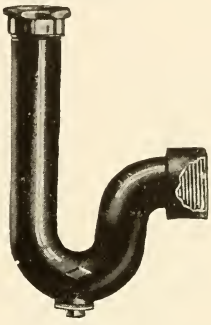


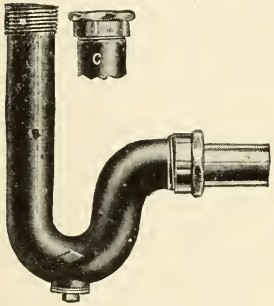
Plate 4076

This has male outlet and nickel-plated slip joint nut inlet.

Size, Iron Pipe . . . inches	1¼	1½
Price, Painted . . . . . each	1.00	1.30
" Galvanized . . . "	1.40	1.80

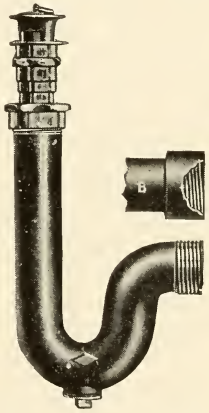
This has female outlet and nickel-plated slip joint inlet.

Size, Iron Pipe . . . inches	1¼	1½
Price, Painted . . . . . each	1.15	1.45
" Galvanized . . . "	1.55	1.95



Plates 4080 and 4080C

These traps have brass clean-out screw and are threaded for iron pipe.



Plates 4084 and 4084B

PLATE 4080

Has male inlet and outlet, nickel-plated brass ground union joint extension piece outlet, 4 inches long.

Size, Iron Pipe . . . inches	1¼	1½
Price, Painted . . . . . each	1.35	1.80
" Galvanized . . . "	1.75	2.30
" Painted White Enamel . . . . . each	1.75	2.30

PLATE 4080C

Has nickel-plated slip joint nut inlet; outlet has nickel-plated ground joint union extension piece, 4 inches long.

Size, Iron Pipe . . . inches	1¼	1½
Price, Painted . . . . . each	1.60	2.10
" Galvanized . . . "	2.00	2.60
" Painted White Enamel . . . . . each	2.00	2.60

Slip joint extension piece outlet instead of ground joint at same price.

PLATE 4084

Has nickel-plated patent overflow basin plug inlet and male outlet.

Size, Iron Pipe . . . inches	1¼	1½
Price, Painted . . . . . each	1.75	2.05
" Galvanized . . . "	2.15	2.55
" Painted White Enamel . . . . . each	2.15	2.55

PLATE 4084B

Has nickel-plated patent overflow basin plug inlet and female outlet.

Size, Iron Pipe . . . inches	1¼	1½
Price, Painted . . . . . each	1.90	2.20
" Galvanized . . . "	2.30	2.70
" Painted White Enamel . . . . . each	2.30	2.70

2-INCH DIAMOND HALF S TRAPS

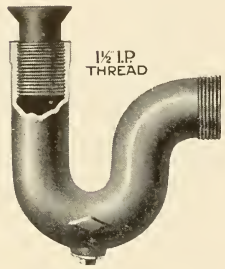


Plate 4088

These traps have brass clean-out screws and are threaded for iron pipe.

They have adjustable inlet, with 2-inch adjustment, which is threaded for 1½-inch pipe and screws into top of trap, permitting regular iron sink collar to attach trap to sink.

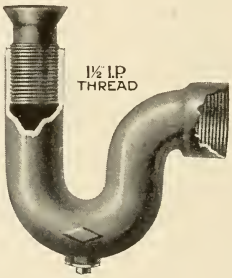


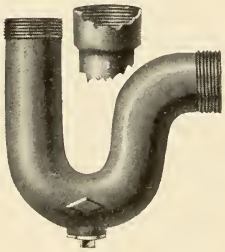
Plate 4092

This has adjustable bell top inlet, and male outlet, threaded for 2-inch pipe.

Price, Painted.....each **2.00**
" Galvanized..... " **2.75**

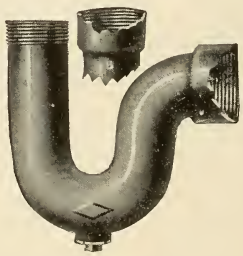
This has adjustable bell top inlet, and female outlet, threaded for 2-inch pipe.

Price, Painted.....each **2.25**
" Galvanized..... " **3.00**



Plates 4096 and 4096B

These traps have brass clean-out screw, and are threaded for 2-inch pipe.



Plates 4100 and 4100B

PLATE 4096

Has male inlet and outlet.

Price, Painted.....each **1.75**
" Galvanized..... " **2.50**

PLATE 4100

Has male inlet and female outlet.

Price, Painted.....each **2.00**
" Galvanized..... " **2.75**

PLATE 4096B

Has female inlet and male outlet.

Price, Painted.....each **2.00**
" Galvanized..... " **2.75**

PLATE 4100B

Has female inlet and outlet.

Price, Painted.....each **2.25**
" Galvanized..... " **3.00**

Add to list of plates 4096 and 4100 for 2-inch nickel-plated slip joint nut to fit 2 or 1½-inch O. D. tubing, .45.

DIAMOND CAST IRON HALF S TRAPS

WITH DOUBLE CLEAN OUT SCREWS

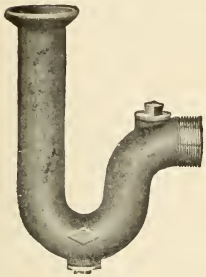


Plate 4104

These traps have brass clean out screw at bottom of trap, and on top near waste end. They are threaded for iron pipe.

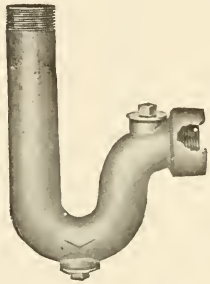


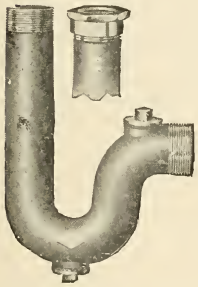
Plate 4108

Regular iron sink collar slips over this trap, engaging bell at top to fasten trap to sink.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.10	1.35
" Galvanized..... "	1.50	1.85

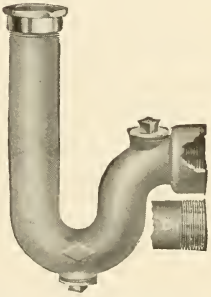
This has male inlet and female outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.25	1.50
" Galvanized..... "	1.65	2.00



Plates 4112 and 4112C

These traps have brass clean out screw at bottom of trap, and on top near waste end. They are threaded for iron pipe.



Plates 4116 and 4116A

PLATE 4112

Has male inlet and outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.10	1.35
" Galvanized..... "	1.50	1.85

PLATE 4112C

Has male outlet, and nickel-plated slip joint nut inlet. On 1¼-inch traps, slip joint nut fits 1¼-inch outside diameter tube; on 1½-inch traps, slip joint nut fits 1½ or 1¼-inch outside diameter tube as ordered, but are regularly sent to fit 1½-inch outside diameter tubes.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.35	1.65
" Galvanized..... "	1.75	2.15

PLATE 4116

Has female outlet and nickel-plated slip joint nut inlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.50	1.80
" Galvanized..... "	1.90	2.30

PLATE 4116A

Has male outlet and nickel-plated slip joint nut inlet.

On 1¼-inch traps slip joint fits 1¼-inch outside diameter tube; on 1½-inch traps, slip joint nut fits 1½ or 1¼-inch outside diameter tube as ordered but are regularly sent to fit 1½ inch outside diameter tube.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.35	1.65
" Galvanized..... "	1.75	2.15

DIAMOND CAST IRON HALF S TRAPS

WITH DOUBLE CLEANOUT SCREWS

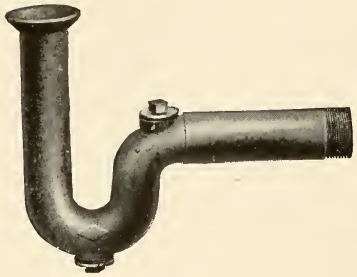


Plate 4120

All these traps have brass cleanout plugs at bottom of trap, and on top, as shown.

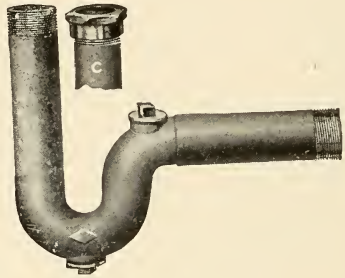
They are threaded for iron pipe, and the extended outlet measures 11½ inches from center of inlet to end of outlet.

The extended outlet can be cut off, and threaded with regular dies.

PLATE 4120

Regular iron sink collar slips over this trap, engaging the bell end at top to fasten trap to sink. The 11½-inch extended outlet will reach into wall from center of sink 20 inches wide.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.50	2.00
" Galvanized... "	2.25	2.90



Plates 4124 and 4124C

PLATE 4124

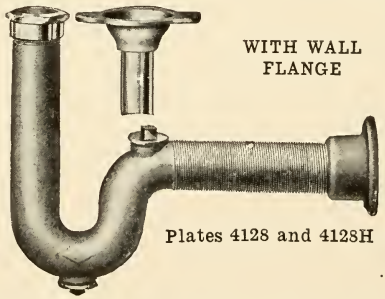
Has male inlet and extended male outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.50	2.00
" Galvanized.... "	2.25	2.90

PLATE 4124C

Has extended male outlet, and nickel-plated slip joint inlet. On 1¼-inch traps the slip joint nut fits 1¼-inch O. D. tube. On 1½-inch traps the slip joint nut fits 1½ or 1¼-inch O. D. tube as desired, but is regularly sent to fit 1-½ inch O. D. tube.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.75	2.30
" Galvanized... "	2.50	3.20



WITH WALL FLANGE

Plates 4128 and 4128H

Plate 4128 has extended outlet, 11½ inches from center of inlet to end of outlet threaded full length, and nickel-plated slip joint inlet. On 1¼-inch traps, the slip joint nut fits 1¼-inch O. D. tube. On 1½-inch traps, the slip joint nut fits 1½ or 1¼-inch O. D. tube as desired, but is regularly sent for 1½-inch O. D. tube. Extension outlet can be cut off with a hack saw to fit desired location if too long.

Plate 4128H is same as 4128, with the addition of a nickel-plated sink collar and tube.

PLATE 4128

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	2.00	2.80
" Galvanized... "	2.75	3.70

PLATE 4128H

Size, Iron Pipe....inches	1¼	1½
Price, Painted.....each	2.50	3.30
" Galvanized... "	3.25	4.20

DIAMOND CAST IRON RUNNING TRAPS

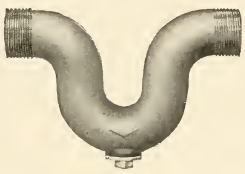


Plate 4132

This running trap has a deep seal, clean out screw, and is threaded male for iron pipe on both ends.

Size, Iron Pipe.....inches	1¼	1½	2
Price, Painted.....each	1.00	1.50	2.25
" Galvanized..... "	1.40	2.00	3.00

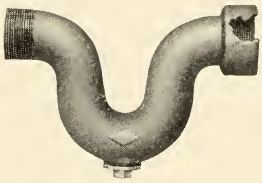


Plate 4136

This running trap has brass cleanout screw, and is threaded male one end and female on the other.

PLATE 4136

Size, Iron Pipe.....inches	1¼	1½	2
Price, Painted.....each	1.15	1.65	2.55
" Galvanized..... "	1.55	2.15	3.20

PLATE 4136B

(NOT ILLUSTRATED)

Plate 4136B is a running trap with brass cleanout screw, threaded female for iron pipe at both ends.

Size, Iron Pipe.....inches	1¼	1½	2
Price, Painted.....each	1.25	1.75	2.75
" Galvanized..... "	1.65	2.25	3.50

DIAMOND CAST IRON BOTTLE TRAPS

Plate 4140

These cast iron bottle traps have brass clean-out screw, and are threaded for iron pipe.

Plate 4144

This bottle trap is threaded female both ends.

Size, Iron Pipe..... inches	1¼	1½
Price, Painted.....each	1.00	1.50
" Galvanized..... "	1.50	2.25
" Painted White Enamel.....each	1.50	2.25

This bottle trap has male inlet and female outlet.

Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.00	1.50
" Galvanized..... "	1.50	2.25
" Painted White Enamel.....each	1.50	2.25
With 1¼-in. Vent, add..each	.50	.50

Plate 4148

These cast iron bottle traps have brass clean-out screw, and are threaded for iron pipe.

Plate 4152

This trap has female outlet and nickel-plated slip joint nut inlet. On 1¼-inch traps, the slip joint nut fits 1¼-inch outside diameter tube. On 1½-inch traps, the slip joint nut fits 1½ or 1¼-inch outside diameter tube, as desired, but is regularly sent to fit 1½-inch outside diameter tube. It can also be fitted for basin plug.

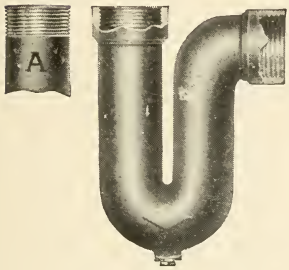
Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.25	1.80
" Galvanized..... "	1.75	2.55
" Painted White Enamel.....each	1.75	2.55
If wanted with Vent, add to list.....	.50	.50
With Patent Overflow Basin Plug, add.....each	.75	.75

This bottle trap with vent has all its pipe connections female. Vent is same size as inlet and outlet of trap.

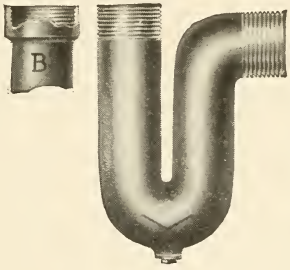
Size, Iron Pipe.....inches	1¼	1½
Price, Painted.....each	1.50	2.00
" Galvanized..... "	2.00	2.75
" Painted White Enamel.....each	2.00	2.75

DIAMOND CLOSE PATTERN HALF S CAST IRON TRAPS

WITH BRASS CLEAN-OUT SCREW



Plates 4161 and 4161A



Plates 4162 and 4162B

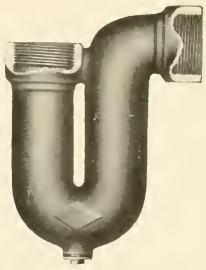


Plate 4162C

Above illustrations show our close pattern half S traps with brass clean-out screw, which, as shown, are made with male or female iron pipe threads at both inlet and outlet. The top of inlet is practically on a level with the top of the outlet. These traps are particularly intended for use on enameled trough urinals, but can be used in connection with many other fixtures.

They are made in 1¼, 1½ and 2-inch sizes and have 2¾-inch depth of seal. The 1½-inch size can be made with inlet extending 2 inches above the top of outlet. Nickel-plated slip joint nuts can be used on male inlet traps to fit tube waste on fixtures.

Plate 4161 has female inlet and outlet.
Plate 4161A has male inlet and female outlet.
Plate 4162 has male inlet and outlet.
Plate 4162B has female inlet and male outlet.
Plate 4162C has female inlet and outlet.

MEASUREMENTS OF PLATES 4161 AND 4162B

Size of Trap	inches	1¼	1½	2
Vertical Length of Trap	"	6	6⅜	7½
Top of Inlet to Center of Outlet	"	1¼	1¼	1⅝
Center of Inlet to End of Outlet	"	4¼	4½	5⅜

MEASUREMENTS OF PLATES 4161A AND 4162

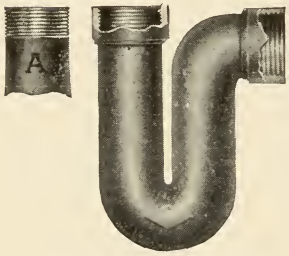
Vertical Length of Trap	inches	6½	6⅞	7 15/16
Top of Inlet to Center of Outlet	"	1¾	1¾	1 15/16
Center of Inlet to End of Outlet	"	4¼	4½	5⅜

Measurements of Plate 4162C same as Plate 4161, except inlet is on same level as center of outlet.

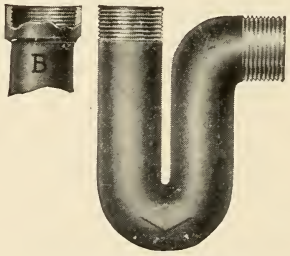
		Painted			Galvanized		
Size, Iron Pipe	inches	1¼	1½	2	1¼	1½	2
Price, Plate 4161	each	.80	1.05	1.35	1.20	1.55	2.10
" " 4161A	"	.80	1.05	1.35	1.20	1.55	2.10
" " 4162	"	.80	1.05	1.35	1.20	1.55	2.10
" " 4162B	"	.80	1.05	1.35	1.20	1.55	2.10
" " 4162C	"	...	1.05	....	....	1.55	....

DIAMOND CLOSE PATTERN HALF S CAST IRON TRAPS

WITHOUT CLEAN OUT SCREW



Plates 4165 and 4165-A



Plates 4166 and 4166-B

Above illustrations show our close pattern half S traps without clean out screw, made with male or female iron pipe threads at both inlet and outlet. The top of inlet is practically on a level with the top of outlet. These traps are extensively used in connection with bath tubs, and on other fixtures where location is such that a clean out screw is not accessible.

They are made in 1¼, 1½ and 2-inch sizes and have 2¾-inch depth of seal. The 1½-inch size can be made with inlet extending 2 inches above the top of outlet. Nickel-plated slip joint nuts can be used on male inlet traps to fit tube waste on fixtures.

Plate 4165 has female inlet and outlet.
Plate 4165-A has male inlet and female outlet.
Plate 4166 has male inlet and outlet.
Plate 4166-B has female inlet and male outlet.

MEASUREMENTS OF PLATES 4165 AND 4166-B

Size of Trap.....inches	1¼	1½	2
Vertical Length of Trap..... "	6	6⅜	7½
Top of Inlet to Center of Outlet..... "	1¼	1¼	1⅝
Center of Inlet to End " " ..... "	4¼	4½	5⅜

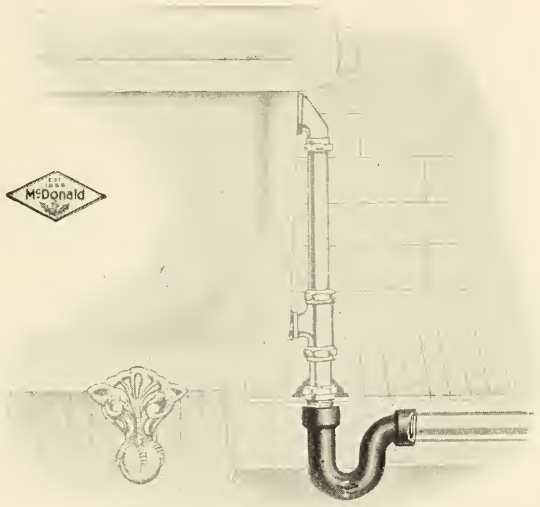
MEASUREMENTS OF PLATES 4165-A AND 4166

Vertical Length of Trap.....inches	6½	6⅞	7 5/16
Top of Inlet to Center of Outlet..... "	1¾	1¾	1 5/16
Center of Inlet to End " " ..... "	4¼	4½	5⅜

	Painted			Galvanized		
Size, Iron Pipe.....inches	1¼	1½	2	1¼	1½	2
Price, Plate 4165.....each	.55	.80	1.10	.90	1.30	1.85
" " 4165-A..... "	.55	.80	1.10	.90	1.30	1.85
" " 4166..... "	.55	.80	1.10	.90	1.30	1.85
" " 4166-B..... "	.55	.80	1.10	.90	1.30	1.85

DIAMOND CAST IRON TRAPS

PACIFIC BATH TRAP



Above illustration shows our Pacific Cast Iron Bath Trap threaded female at inlet and outlet. Inlet is practically level with top of outlet, so it goes below the floor. A brass soldering bushing is soldered on lower end of waste tube of connected waste and overflow and the tube is screwed into inlet of trap, making a tight joint.

These 1½-inch Pacific bath traps are made in three styles, to meet varying needs. They are all made without cleanout screw, preventing any chance for leakage below the floor.

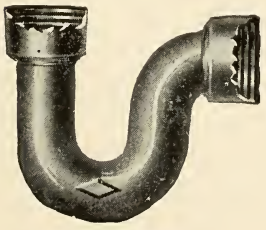


Plate 4156

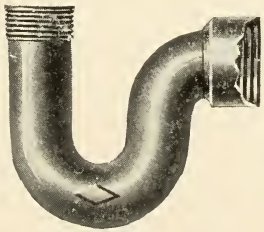


Plate 4160

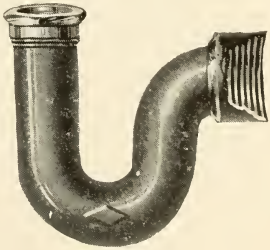


Plate 4164

Plate 4156 has female inlet and outlet for 1½-inch pipe.
Plate 4160 has male inlet and female outlet for 1½-inch pipe.
Plate 4164 has female outlet and nickel-plated slip joint inlet.

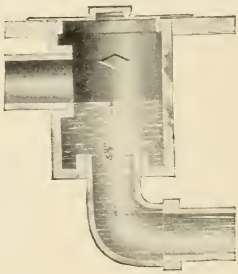
Plate Number		4156	4160	4164
Price, Painted	each	.80	.80	1.10
" Galvanized	"	1.25	1.25	1.55

Nickel-plated slip joint nut on plate 4164 regularly fits 1½-inch O. D. tube, but can be furnished to fit 1⅜ or 1¼ O. D. tube. Specify which size tube the nut is to fit.

DIAMOND CAST IRON TRAPS

TWENTIETH CENTURY DRUM TRAP

Showing Trap in Use



Showing 3½-Inch Water Seal

All iron pipe connections. Outlet can be placed in any direction, thus making position adjustable. Trap and connections can be used where joists are only 8 inches between plaster and floor. Perfect joint over floor; accessible for cleansing; made of the best close-grain, gray cast iron.

Plate 4168

Nickel-plated brass trap screw cover 4⅝ inches in diameter, with nut for wrench, or countersunk if desired; cover is threaded with 3-inch iron pipe thread, so that an ordinary iron pipe plug can be substituted for brass cover during the roughing in period and for testing purposes.

Outside diameter, 4¼ inches; height, 5¼ inches; threaded for 1½ or 1¼-inch iron pipe. SPECIFY SIZE OF TAPPING DESIRED.

Price, Painted	each	**2.25**
" Galvanized	"	**3.25**
" Cover only, Nickel-plated Brass	"	**1.25**

Flanged cover 5⅜ inches in diameter can be furnished if desired. When so fitted, add, each, .35.

NICKEL-PLATED BRASS SLIP JOINT NIPPLES

TO CONNECT PIPE UNDER FLOOR TO BATH WASTE

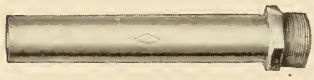


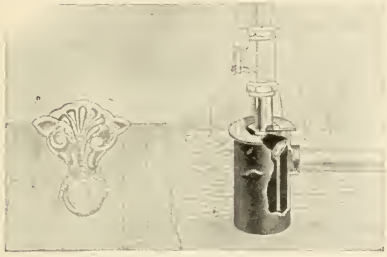
Plate 4172

Plate 4176

Size Iron Pipe	inches	1¼	1¼	1¼	1½	1½	1½
" O. D. of Brass Tube	"	1¼	1⅜	1½	1¼	1⅜	1½
Plate 4172, Male, 4 inches long	each	**.70**	**.70**	....	**.85**	**.85**	**.85**
" 4176, Female, 3½ inches long	"	**1.00**	**1.00**	**1.10**	**1.15**	**1.15**	**1.25**

DIAMOND CAST IRON TRAPS

RIVAL DRUM BATH TRAP



The illustration shows our new drum bath trap. A nickel-plated tube, screwed into top of nickel-plated cover slips into lower end of tee of connected waste and overflow, and makes the inlet of the trap. Outlet is on the side of trap body, and can be turned in any direction. Particular attention is called to the partition inside the trap, which shuts off all direct connection between waste pipe and cover of trap. This partition is a very valuable feature from a sanitary standpoint, as in this trap the washer under the cover is of minor importance, while in ordinary drum taps the washer under the cover **MUST BE TIGHT** to prevent sewer gas from entering the room.

The partition inside trap is fitted with a brass cleanout plug near top which can be removed to give access to waste pipe and the part of the trap between partition and waste.

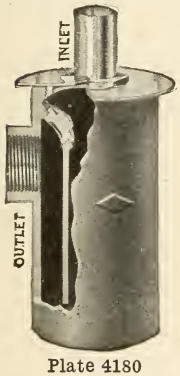


Plate 4180

These drum bath traps have nickel-plated flanged covers, threaded with 3-inch iron pipe thread where they fasten to body of trap. This permits the use of a 3-inch pipe plug during the period between roughing in and finishing, and for testing purposes.

The nickel-plated tube screwed into top of cover will be furnished 1¼, 1⅜ or 1½-inch outside diameter. Specify size wanted.

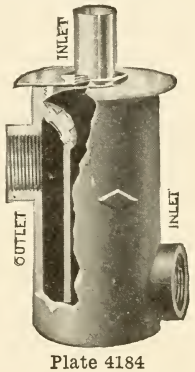


Plate 4184

Plate 4180 is our Rival Iron Drum Bath Trap, with inlet in cover and 1½-inch outlet. Plate 4184 is our Rival Iron Drum Bath Trap with inlet in cover, an extra 1½-inch inlet on side opposite waste, and 1½-inch outlet. This extra 1½-inch inlet is often used to catch waste from a lavatory or other fixture, saving an extra connection in soil pipe. This extra inlet can be placed at any desired point in body of trap, but is regularly sent as shown, directly opposite the outlet or waste.

These traps are always sent tapped for 1½-inch pipe; if wanted for 1¼-inch pipe it will be necessary to bush them down by means of 1½ to 1¼-inch bushings.

Plate Number		4180	4184
Price, Painted	each	3.25	3.50
" Galvanized	"	4.25	4.50

In ordering, be sure to state size (outside diameter) of tube desired in top of cover, as they can be sent 1¼, 1⅜ or 1½-inch.

Traps measure 4 inches inside diameter by 8½ inches long. The flange cover is 5⅜ inches in diameter. Extra inlets add 25c each to list of above traps.

DIAMOND CAST IRON TRAPS

RIVAL DRUM TRAPS

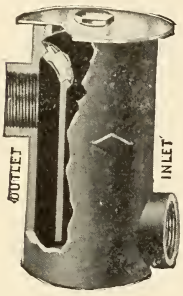


Plate 4188

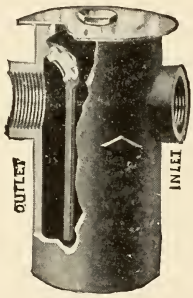


Plate 4192

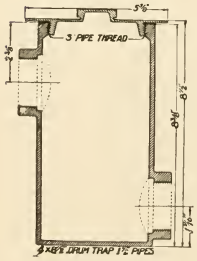
Plate 4196

Above illustrations show our Rival Drum Traps, which are a decided improvement over the common drum trap. A cast partition, shown in the sectional view, makes a positive seal between outlet and cover, so that the washer between cover and body of trap is of minor importance; in the ordinary drum trap, the washer must be perfect and tight to prevent sewer gas from entering the room. A brass clean-out plug, in top of this partition, can be removed to give access to outlet and that part of trap below outlet. If traps are wanted without this clean-out plug in partition, we will furnish them with this partition made solid.

Inlets and outlets of these traps are regularly for 1½-inch pipe, but are also furnished for 2-inch pipe when so ordered, at the same price. Inlets can be placed at any desired point in body of trap, and as many of them as are wanted, an extra charge being made for the extra number of openings. These traps measure 4 inches inside diameter by 8½ inches long.

Plate Number		4188	4192	4196
Price, Painted	each	3.25	3.25	3.50
" Galvanized	"	4.25	4.25	4.50
Add for each extra Inlet	"	.25	.25	.25

4x8½-INCH



SECTIONAL

All the drum traps shown above have 5⅜ inch diameter nickel-plated brass cover with projecting flange; covers are threaded for 3-inch iron pipe so that after roughing in, an ordinary 3-inch pipe plug may be substituted for the brass cover during the process of testing, etc., and the brass cover placed in position only when the work is completed; Plate 4196 is quite commonly used for right or left hand inlet or outlet, one of the two opposite openings being plugged.

DIAMOND CAST IRON TRAPS

STANDARD DRUM TRAPS

4x8½ AND 4x10

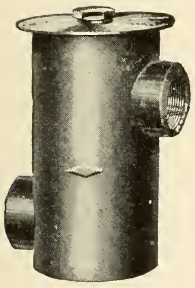


Plate 4200

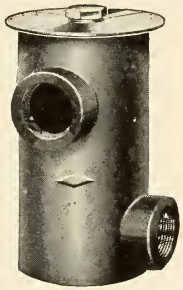


Plate 4204

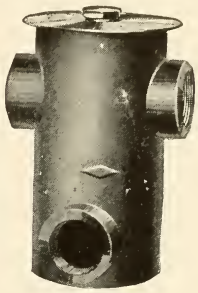


Plate 4208

Above traps are tapped regularly for 1½-inch iron pipe, but may be tapped for 2-inch iron pipe at the same price; 4 inches in diameter, either 8½ inches or 10 inches long, as listed below, see sectional cuts; traps can be furnished with openings in any desired position other than as shown above and additional openings can also be provided, in positions and sizes as may be specified, but sketch must be submitted with special orders of this kind.

PLATES 4200 OR 4204

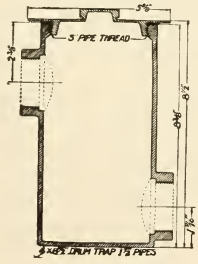
Size	inches	4x8½	4x10
Price, Painted	each	2.50	2.75
" Galvanized	"	3.50	4.00

PLATE 4208

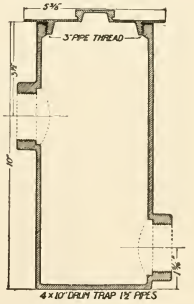
Price, Painted	each	2.75	3.00
" Galvanized	"	3.75	4.25
" Cover only, Nickel-plated Brass	"	1.25	1.25

SECTIONAL

4x8½ INCHES



4x10 INCHES



All the drum traps shown above have 5⅜-inch diameter, nickel-plated brass cover with projecting flange; covers are threaded for 3-inch iron pipe so that after roughing in, an ordinary 3-inch pipe plug may be substituted for the brass cover during the process of testing, etc., and the brass cover placed in position only when the work is completed. Plate 4208 is quite commonly used for right or left-hand inlet or outlet, one of the two opposite openings being plugged.

DIAMOND CAST IRON SHOWER STALL TRAP

CAST IRON BODY NICKEL-PLATED BRASS STRAINER

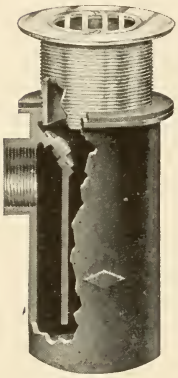


Plate 4209

This trap is for use in shower bath stalls. Cast Iron Body is 8½ inches long by 4-inch inside diameter. Flange at the top of body is 5 inches diameter, tapped on the inside for 3-inch iron pipe for the strainer to screw into. A cast iron partition, shown in the sectional view, makes a positive seal between outlet of trap and strainer. A brass clean out plug in the top of this partition can be removed to give access to the outlet and to that part of the trap below the outlet. Waste outlet is tapped 1½ or 2-inch iron pipe, but regularly sent for 1½-inch pipe.

Strainer Body is heavy cast brass, nickel-plated. Flange at top measures 5 inches in diameter, and is threaded with 3-inch iron pipe running thread where it screws into the iron body of trap. Length of this 3-inch pipe thread is 3½ inches, adapting it for use on cement floors or floor slabs up to 3 inches thick, but of course it can be furnished shorter or cut off to suit conditions. Two lugs on the inside of strainer body provide easy means for screwing strainer body into the body of trap.

Bar strainer is nickel-plated brass, of large capacity, fastened to the strainer body by nickel-plated screws, easily removed.

Rubber gasket is sent to make tight joint between trap and floor.

Price, Painted Body, Nickel-plated Strainer	each	8.50
" Galvanized Body, Nickel-plated Strainer	"	10.00

DIAMOND 3x6-INCH CAST IRON DRUM TRAPS

NICKEL-PLATED FLANGED COVER

TAPPED FOR 1½-INCH PIPE

Plate 4210

This Trap has cast iron body tapped on side for 1½-inch pipe, and on top for 1½-inch pipe. The side openings are for waste and inlet, while the top opening is for a 1½ inch nipple of desired length to reach the flange on the floor. The nickel-plated brass cover is tapped female for 1½-inch pipe, and screws on to a 1½-inch nipple in the top of the trap. Nickel-plated brass cover is flanged to make a finish on the floor, and is 3 inches in diameter.

Price, Painted	each	1.50
" Galvanized	"	2.25
" Nickel-plated Cover only	"	.80

Plate 4211

3x6-INCH CAST IRON DRUM TRAPS

ROUGH BRASS CLEAN OUT TAPPED FOR 1½-INCH PIPE

Cast iron body of this trap measures 3 inches by 6 inches. It is tapped on sides for 1½-inch pipe, and has a rough brass clean out in the bottom; this brass clean out has a 1½-inch male iron pipe thread.

Price, Painted	each	1.35
" Galvanized	"	2.10
" Brass Clean Out only	"	.65

DIAMOND CAST IRON DRUM TRAPS

4x7-INCH DRUM TRAP

Plate 4212

The two lower openings are parallel, usually threaded for 1-inch iron pipe, but may be tapped 1¼-inch if desired. The three upper openings are threaded for 1¼-inch pipe.

This number of openings in the trap permits its use in a variety of ways; openings not needed being plugged up; thus in this one trap we have a standard answering the purpose of at least four or five patterns.

Nickel-plated brass trap screw cover (countersunk or raised hexagon as ordered) with beveled edge, so as to set neatly on surface and flush with the floor. Cover is threaded for 3-inch pipe where it screws into body of trap, and is 5⅜ inches in diameter.

		Painted	Galv.
Price	each	2.50	4.00
Price, Cover only, Nickel-plated Brass		1.25	

WITH NICKEL-PLATED EXTENSION BRASS COVER

4x8½-INCH 4x10-INCH

Plate 4213

This shows one of our iron drum traps fitted with nickel-plated brass extension cover The brass cover screwed into the trap body does not project beyond the edge of the body, and is tapped in the center, on top, for ½-inch pipe. The extension flanged cover is nickel-plated brass, 5⅜ inches diameter, and is tapped on the under side for ½-inch pipe. A ½-inch nipple, of desired length, is used to connect the two covers, adapting the trap for use where it is, or must be, set below the level of the floor, such as in cement or tile floors. The nipple connecting the two covers is not furnished unless ordered. Trap is tapped for 1½ or 2-inch pipe. as ordered.

The two covers only are furnished separately, as listed below, and the lower cover is threaded for 3-inch pipe where it screws into body of trap, the same as all our drum trap covers, and there is considerable demand for them for use where the drum trap body has been roughed in below level of the floor, or when tile floor has been decided on after roughing in is completed.

Size	inches	4x8½	4x10
Price, Painted	each	4.00	4.25
" Galvanized	"	5.00	5.50
Add for Additional Opening	"	.25	.25
Brass Covers Only, without Nipple	per pair	2.50	

Any of our iron drum traps can be furnished with extension flange covers at an additional list price of 1.50.

Extension cover can be furnished countersunk at the same price.

DIAMOND CAST IRON GREASE TRAPS

7X10½ INCHES

THREADED COVER

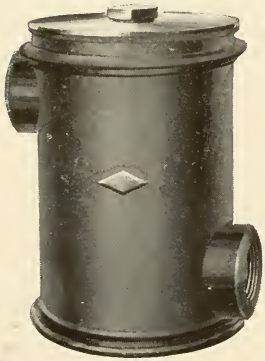
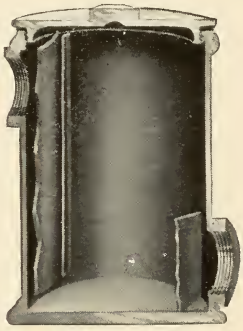


Plate 4216

SECTIONAL



Plates 4216 and 4220

BOLTED COVER

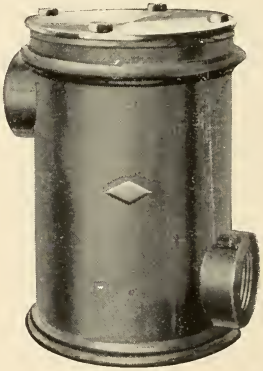


Plate 4220

The Diamond grease trap is designed for use under a kitchen sink or in connection with the outlet of any other fixture through which a considerable amount of grease may flow from time to time.

A baffle-plate being cast integral with the trap is placed immediately in front of the lower opening which is the inlet, thus causing the water to ascend when entering the trap. the grease naturally collecting and remaining at the top.

A large baffle-plate protects the outlet or upper opening, and prevents the grease from flowing out through this opening, as the water must first go down and come up around the baffle-plate in seeking the outlet; by removing the brass trap screw, the large baffle-plate, which goes down in a groove, may be withdrawn and the trap easily cleaned when necessary,

The brass cover is 6 inches diameter, polished, and is either threaded to screw into body of trap or is fastened to the trap by four brass bolts. We believe that the bolted cover is the most convenient, and so recommend its use. Price is the same with either cover.

The cast iron body of the trap is 7 inches outside diameter by 10½ inches high. It is neat in design and of good proportion, and may be used as an exposed fixture. Both inlet and outlet are threaded for 1½-inch iron pipe, but can be threaded for 2-inch pipe when so ordered at the same price.

Price, Plates 4216 and 4220, Painted	each	**10.00**
" " 4216 " 4220, Galvanized	"	**14.00**
" " 4216 " 4220, Painted White Enamel	"	**14.00**
Add for Nickel-plated Cover	"	**1.00**

DIAMOND CAST IRON TRAPS

IMPROVED GREASE TRAP

7X10 INCHES

THREADED COVER

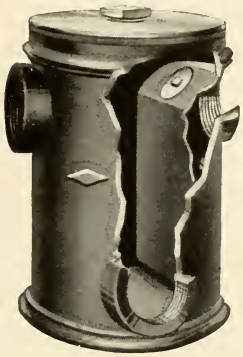


Plate 4224

BOLTED COVER

Plate 4225

A high-grade trap for use under kitchen sink, laundry tub, or other fixtures where grease and soap are likely to accumulate and lodge in waste pipes, thus causing stoppage and consequent annoyance.

Inlet, outlet and vent openings are all tapped for 2-inch iron pipe.

In the web of the intercepter is a 1¼-inch brass trap screw, so that the outer space and waste pipe may be reached for cleansing.

Made with threaded or bolted cover. Polished brass threaded cover is 6 inches in diameter, either hexagon or countersunk for wrench.

Price, Painted, Threaded or Bolted Cover	each	13.00
" Galvanized	"	17.00
" Painted White Enamel	"	17.00
" Add for Nickel-plated Brass Cover	"	1.00

JUMBO GREASE INTERCEPTER

Plate 4228

12 INCHES DIAMETER X 10½ INCHES HIGH

Made of the finest close grain, gray cast iron for use where large quantities of grease or soap are likely to accummulate. Interior construction same as Plate 4224.

Inlet, outlet and vent openings are all tapped for 2-inch iron pipe.

A 1¼-inch brass trap screw is provided in the web of the intercepter to facilitate cleansing the outer space or the waste pipe.

The polished brass trap screw cover is 6 inches in diameter, either screwed or bolted, and with raised or countersunk hexagon as desired.

The outer rim of brass trap screw is beveled so as to set as nearly flush with the floor as possible when trap is placed on a level with the floor.

Price, Painted	each	18.00
" Galvanized	"	25.00
" Painted White Enamel	"	25.00
" Add for Nickel-plated Brass Cover	"	1.00

LEAD TRAPS

PLAIN

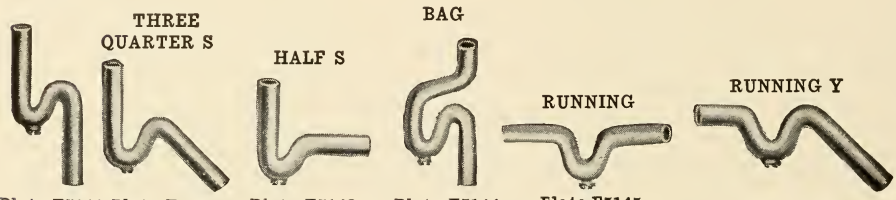


Plate E5141 Plate E5142 Plate E5143 Plate E5144 Plate E5145 Plate E5146

Description	Standard					Special (Medium)			Extra Heavy				
Weight, per ft.....pounds	1½	2¼	3¼	5	6	2	3	4	2½	3½	4½	6	8
Size .....inches	1¼	1½	2	3	4	1¼	1½	2	1¼	1½	2	3	4
Price, Full S.....each	.58	.90	1.38	2.69	3.25	.73	1.03	1.65	.87	1.25	1.85	3.09	4.30
" ¾ S..... "	.55	.81	1.30	2.62	3.07	.66	.94	1.53	.81	1.15	1.73	2.97	3.95
" ½ S..... "	.51	.75	1.20	2.24	2.49	.64	.87	1.42	.77	1.09	1.57	2.58	3.25
" Bag ..... "	.68	1.08	1.73	3.35	4.77	.87	1.28	2.08	1.06	1.54	2.33	3.96	6.30
" Running..... "	.48	.72	1.13	2.09	2.53	.58	.87	1.32	.70	1.03	1.46	2.35	3.28
" " Y.... "	.52	.76	1.34	2.46	3.15	.65	.94	1.45	.74	1.09	1.61	2.88	4.05

WITH VENT—Not Illustrated

Description	Standard					Special (Medium)			Extra Heavy				
Weight, per ft.....pounds	1½	2¼	3¼	5	6	2	3	4	2½	3½	4½	6	8
Size .....inches	1¼	1½	2	3	4	1¼	1½	2	1¼	1½	2	3	4
Price, Full S.....each	1.38	1.85	2.33	3.94	4.50	1.53	1.98	2.60	1.67	2.20	2.80	4.34	5.55
" ¾ S..... "	1.35	1.76	2.25	3.87	4.32	1.46	1.89	2.48	1.61	2.10	2.68	4.22	5.20
" ½ S..... "	1.31	1.70	2.15	3.49	3.74	1.44	1.82	2.37	1.57	2.04	2.52	3.83	4.50
" Bag ..... "	1.48	2.03	2.68	4.60	6.02	1.67	2.23	3.03	1.86	2.49	3.28	5.21	7.55
" Running..... "	1.28	1.67	2.08	3.34	3.78	1.38	1.82	2.27	1.50	1.98	2.41	3.60	4.53
" " Y.... "	1.32	1.71	2.29	3.71	4.40	1.45	1.89	2.40	1.54	2.04	2.56	4.13	5.30

Prices include brass drain screws on all sizes except 4-inch.

Eighth bend vent connections will be furnished, if not otherwise specified; 2-inch vented traps are furnished with 1½-inch vent; if 2-inch vent is desired, add 30 cents to list.

3 and 4-inch vented traps have 2-inch vent.

EXTRA LONG LEAD TRAPS

PLAIN

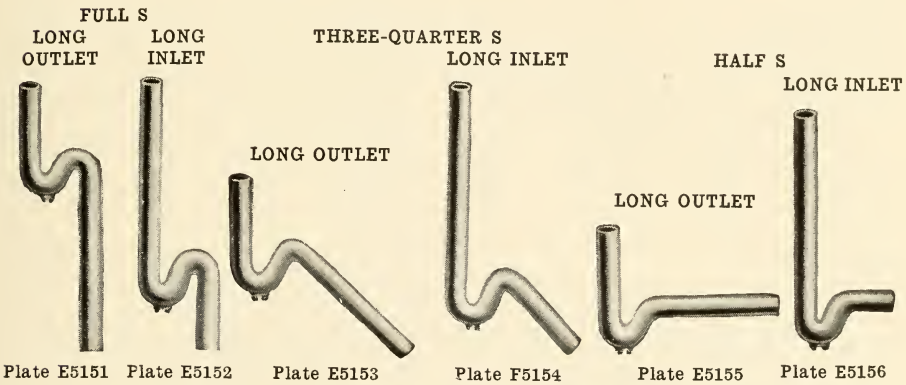


Plate E5151 Plate E5152 Plate E5153 Plate F5154 Plate E5155 Plate E5156

Description	Standard			Special (Medium)			Extra Heavy		
Weight, per foot...pounds	1½	2¼	3¼	2	3	4	2½	3½	4½
Size.....inches	1¼	1½	2	1¼	1½	2	1¼	1½	2
Full "S," Long Inlet or Outlet..each	.93	1.36	2.00	1.19	1.64	2.40	1.44	1.95	2.69
¾ "S," " " " " . "	.85	1.19	1.76	1.04	1.43	2.08	1.28	1.72	2.33
½ "S," " " " " . "	.76	1.02	1.55	.95	1.22	1.83	1.14	1.50	2.02
Bag, " " " " . "	1.09	1.58	2.34	1.38	1.91	2.80	1.67	2.24	3.11
Running..... "	.82	1.15	1.67	1.01	1.41	1.98	1.23	1.65	2.18
" "Y"..... "	.83	1.15	1.82	1.05	1.45	2.01	1.23	1.52	2.23

WITH VENT

Not Illustrated

Description	Standard			Special (Medium)			Extra Heavy		
Weight, per foot...pounds	1½	2¼	3¼	2	3¼	4	2½	3½	4½
Size.....inches	1¼	1½	2	1¼	1½	2	1¼	1½	2
Full "S," Long Inlet or Outlet..each	1.73	2.31	2.95	1.99	2.59	3.35	2.24	2.90	3.64
¾ "S," " " " " . "	1.65	2.14	2.71	1.84	2.38	3.03	2.08	2.67	3.28
½ "S," " " " " . "	1.56	1.97	2.50	1.75	2.17	2.78	1.94	2.45	2.97
Bag, " " " " . "	1.89	2.53	3.29	2.18	2.86	3.75	2.47	3.19	4.06
Running..... "	1.62	2.10	2.62	1.81	2.36	2.93	2.03	2.60	3.13
" "Y"..... "	1.63	2.10	2.77	1.85	2.40	2.96	2.03	2.47	3.18

For full size (2-inch) vents on 2-inch traps, add .30.

TRAPS

CUDELL TRAPS

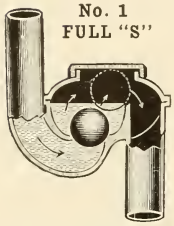
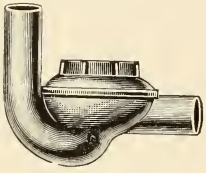


Plate E5161



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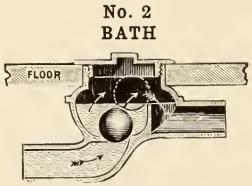

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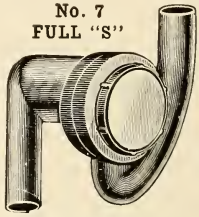


Plate E5164

Size of Inlet ..... inches	1	1¼	1¼	1½	1½
" " Outlet ..... "	1¼	1¼	1½	1½	2
Price No. 1, "S," ½ "S," or ¾ "S" ..... each	2.00	2.00	2.50	2.50	2.70
" " 1, "S," ½ "S," " ¾ "S," Vented ..... "	2.50	2.50	3.00	3.00	3.20
" " 2, Bath "S," ½ "S" or Running ..... "	2.30	2.30	2.90	2.90	3.00
" " 7, "S," Short Lead Outlet ..... "	2.30	2.30	2.70	2.70	....
" " 7, "S," Long " " ..... "	3.10	3.10	3.60	3.60	....
" " 7½ "S," Long Lead Outlet ..... "	2.50	2.50	3.00	3.00	....
" " 7, "S," Long Brass Outlet, Ground Union.. "	4.20	4.20	4.90	4.90	....
" " 7, ½ "S," " " " " " " " " "	3.40	3.40	4.00	4.00	....
" Extra for No. 7 Traps with Vent ..... "	.50	.50	.60	.60	....

Extra for nickel-plated cover on bath traps, each, 10 cents.

BOWER TRAPS

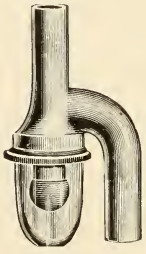
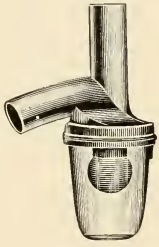


Plate E5165



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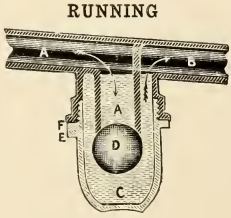


Plate E5167

Size of Inlet ..... inches	1¼	1¼	1½	1½
" " Outlet ..... "	1¼	1½	1½	2
Price, "S" with Glass Cup ..... each	1.50	1.55	1.90	2.00
" "S" " Lead " ..... "	1.70	1.75	2.15	2.25
" "S" " Sheet Brass Cup ..... "	1.90	1.95	2.40	2.50
" ½ "S" with Glass Cup ..... "	1.45	1.50	1.80	1.90
" ½ "S" " Lead " ..... "	1.65	1.70	2.05	2.15
" ½ "S" " Sheet Brass Cup ..... "	1.85	1.90	2.30	2.40
" Running with Glass Cup ..... "	1.55	....	1.90	....
" " " Lead " ..... "	1.75	....	2.15	....
" " " Sheet Brass Cup ..... "	1.95	....	2.40	....

TRAPS

LEAD DRUM TRAPS WITH BRASS TRAP SCREWS

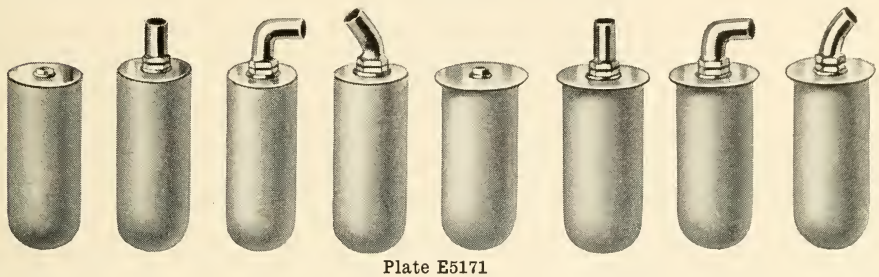


Plate E5171

Number	1	2	3 and 4	5	5½	6	7 and 8
Outside Diameter of Cap.....inches	4⅛	4⅛	4⅛	4½	5	4½	4½
Price, 4x 8 inches, Standard Weight..each	1.90	2.60	3.00	2.00	2.10	2.80	3.20
" 4x 9 " " " .. "	2.02	2.72	3.12	2.12	2.22	2.92	3.32
" 4x10 " " " .. "	2.10	2.80	3.20	2.20	2.30	3.00	3.40
" 6x10 " " " .. "	3.55	4.25	4.65	3.65	3.75	4.45	4.85
" 6x11 " " " .. "	3.75	4.45	4.85	3.85	3.95	4.65	5.05
" 6x12 " " " .. "	3.90	4.60	5.00	4.00	4.10	4.80	5.20
" 4x 8 " Extra Heavy " .. "	2.40	3.10	3.50	2.50	2.60	3.30	3.70
" 4x 9 " " " " .. "	2.50	3.20	3.60	2.60	2.70	3.40	3.80
" 4x10 " " " " .. "	2.63	3.33	3.73	2.73	2.83	3.53	3.93
" 6x10 " " " " .. "	4.15	4.85	5.25	4.25	4.35	5.05	5.45
" 6x11 " " " " .. "	4.35	5.05	5.45	4.45	4.55	5.25	5.65
" 6x12 " " " " .. "	4.60	5.30	5.70	4.70	4.80	5.50	5.90
" Extra for Pol. or N. P. Trap Screws "	.20	.30	.30	.20	.25	.30	.30
" Trap Screws Only, Ordinary Finish "	1.00	1.70	2.10	1.10	1.20	1.90	2.30
" " " " Nickel-plated "	1.20	2.00	2.40	1.30	1.45	2.20	2.60

CLEAN SWEEP TRAPS

FULL S

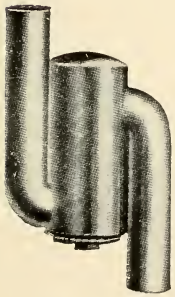


Plate E5172

HALF S

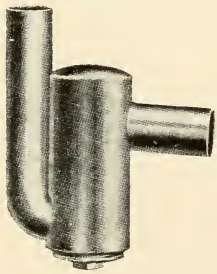


Plate E5173

RUNNING

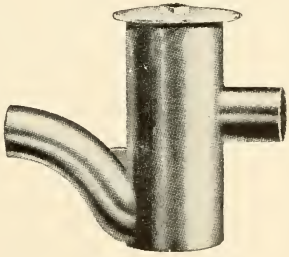


Plate E5174

Description	Without Vent			With Vent		
Size.....inches	1¼	1½	2	1¼	1½	2
Price, Lead, S.....each	1.20	1.55	2.30	1.80	2.35	3.00
" " Half S..... "	1.10	1.35	2.00	1.75	2.05	2.70
" " Running with Flanged Cover.. "	1.50	1.90	....	2.15	2.60	....
" Rough Brass, S..... "	2.60	3.60	....	3.10	4.10	....
" " " Half S..... "	2.30	3.30	....	2.80	3.80	....
" " " Running, with Flange Cover.... "	3.30	4.00	....	3.40	4.30	....

LEAD BENDS

REGULAR

LONG

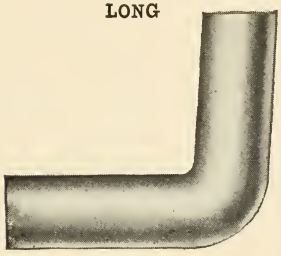


Plate E5181

SHORT

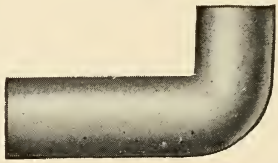


Plate E5182

Description	Standard					Special (Medium)			Extra Heavy				
Weight, per foot...pounds	1½	2¼	3¼	5	6	2	3	4	2½	3½	4½	6	8
Size.....inches	1¼	1½	2	3	4	1¼	1½	2	1¼	1½	2	3	4
Price, Long.....each	.30	.50	.78	1.39	1.95	.41	.66	1.00	.50	.79	1.05	1.60	2.40
" Short ..... "	.25	.38	.57	1.09	1.50	.31	.51	.69	.34	.62	.80	1.21	1.84

EXTENSION

LONG

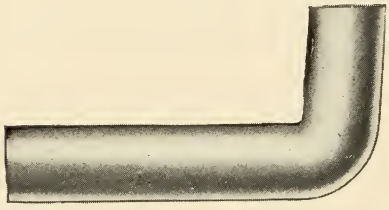


Plate E5183

SHORT

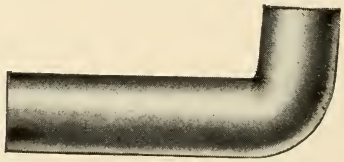


Plate E5184

Description	Standard					Special (Medium)			Extra Heavy				
Weight, per foot...pounds	1½	2¼	3¼	5	6	2	3	4	2½	3½	4½	6	8
Size.....inches	1¼	1½	2	3	4	1¼	1½	2	1¼	1½	2	3	4
Long Inlet, 12-inch Outlet, each	.46	.67	.99	1.73	2.15	.60	.89	1.24	.70	1.07	1.35	1.96	2.62
" " 15 " " "	.54	.77	1.14	1.99	2.44	.70	1.03	1.42	.82	1.24	1.56	2.25	2.98
" " 18 " " "	.62	.88	1.29	2.24	2.73	.80	1.17	1.61	.94	1.41	1.76	2.54	3.34
" " 20 " " "	.67	.95	1.39	2.42	2.92	.87	1.26	1.74	1.02	1.52	1.90	2.74	3.58
Short " 12 " " "	.40	.56	.79	1.39	1.70	.52	.75	.99	.60	.90	1.08	1.57	2.09
" " 15 " " "	.47	.67	.94	1.65	2.00	.62	.89	1.17	.72	1.07	1.28	1.87	2.45
" " 18 " " "	.55	.77	1.09	1.90	2.30	.72	1.03	1.36	.84	1.24	1.49	2.16	2.81
" " 20 " " "	.60	.84	1.19	2.07	2.48	.79	1.12	1.49	.92	1.35	1.63	2.35	3.04

EXTRAS ON LONG AND SHORT EXTENDED BENDS

Description	Standard					Special (Medium)			Extra Heavy				
Size.....inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2	3	4	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$1\frac{1}{4}$	$1\frac{1}{2}$	2	3	4
Price for Each inch of Excess Length over Listed Sizes, add to List of Nearest Listed Size	.03¼	.04½	.06¼	.10¾	.12	.04¼	.06	.07¾	.05	.07	.08½	.12	.15

Short inlet-ends are the same dimensions as inlets on short bends of corresponding size. Long inlet-ends are the same as on long bends.

COMBINATION FERRULES, ETC.

COMBINATION FERRULES

Plate E5191

STANDARD

Length.....inches	4	4½	5	6	8	10	12
Price, 1¼-inch, for 2-inch Cast Iron Pipe, each	....	.28	.36	.43	.51	.60	.67
" 1½ " " 2 " " " " "	....	.28	.36	.43	.51	.60	.67
" 2 " " 2 " " " " "	.28	....	.41	.46	.57	.67	.76
" 3 " " 3 " " " " "	.42	....	.60	.67	.82	.98	1.10
" 4 " " 4 " " " " "	.50	....	.72	.85	1.02	1.25	1.40

Length.....inches	14	16	18	20	24	30	36
Price, 1½-inch, for 2-inch Cast Iron Pipe, each	.80	.90	1.00	1.10	1.30	....	....
" 2 " " 2 " " " " "	.80	.86	.92	1.00	1.15	1.40	1.65
" 3 " " 3 " " " " "	1.15	1.22	1.30	1.40	1.60	2.00	2.30
" 4 " " 4 " " " " "	1.60	1.73	1.85	2.10	2.30	2.75	3.25

EXTRA HEAVY

Length.....inches	4	4½	5	6	8	10	12
Price, 1½-inch, for 2-inch Cast Iron Pipe, each	....	.38	.44	.52	.61	.72	.80
" 2 " " 2 " " " " "	.42	....	.49	.54	.67	.81	.93
" 3 " " 3 " " " " "	.55	....	.75	.84	1.00	1.18	1.35
" 4 " " 4 " " " " "	.70	....	.84	.94	1.23	1.45	1.67

Length.....inches	14	16	18	20	24	30	36
Price, 1½-inch, for 2-inch Cast Iron Pipe, each	1.15	1.30	1.45	1.60	1.90	....	....
" 2 " " 2 " " " " "	1.10	1.23	1.36	1.49	1.75	2.20	2.60
" 3 " " 3 " " " " "	1.46	1.63	1.80	1.97	2.33	2.90	3.40
" 4 " " 4 " " " " "	2.00	2.21	2.45	2.70	3.16	3.76	4.36

Size.....inches	2	3	4
For Brass Thimbles, add to list.....each	.25	.50	.75

COMBINATION BENDS AND FERRULES

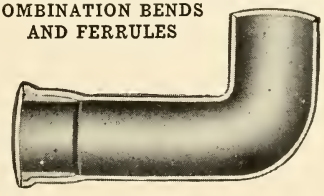


Plate E5192

STANDARD

Length.....inches	12	13	14	15	16	17	18	19	20
Price, 4-inch, Short Inlet, (5½ inches), each	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00
" 4 " Long " (9¾ ") "	2.65	2.75	2.85	2.94	3.04	3.14	3.23	3.33	3.42

EXTRA HEAVY

Length.....inches	12	13	14	15	16	17	18	19	20
Price, 4-inch, Short Inlet, (5½ inches), each	2.59	2.71	2.83	2.95	3.07	3.19	3.31	3.43	3.54
" 4 " Long " (9¾ ") "	3.12	3.24	3.36	3.48	3.60	3.72	3.84	3.96	4.08

COMBINATION SOLDERING NIPPLES

LEAD AND BRASS

STRAIGHT

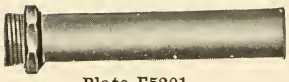


Plate E5201

BENT

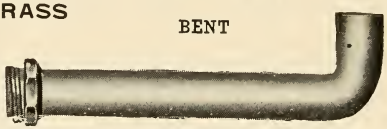


Plate E5202

STRAIGHT, STANDARD

Length ..... inches	4	5	6	8	10	12	14
Price, 1¼-inch, for 1¼-inch Iron Pipe ..... each	.39	.42	.44	.52	.58	.63	.73
" 1½ " " 1½ " " " ..... "	.48	.55	.60	.66	.74	.80	.93
" 2 " " 2 " " " ..... "	.72	.81	.86	.96	1.08	1.17	1.37
" 3 " " 3 " " " ..... "	1.26	1.43	1.50	1.67	1.86	2.00	2.27
" 4 " " 4 " " " ..... "	1.63	1.84	1.95	2.13	2.36	2.53	2.93

Length ..... inches	16	18	20	24	30	36	....
Price, 1¼-inch, for 1¼-inch Iron Pipe ..... each	.78	.83	.90	1.00	1.20	1.30	....
" 1½ " " 1½ " " " ..... "	1.00	1.07	1.15	1.30	1.48	1.65	....
" 2 " " 2 " " " ..... "	1.47	1.56	1.68	1.87	2.27	2.58	....
" 3 " " 3 " " " ..... "	2.41	2.56	2.70	3.00	3.53	4.00	....
" 4 " " 4 " " " ..... "	3.10	3.27	3.45	3.80	4.35	4.92	....

STRAIGHT, EXTRA HEAVY

Length ..... inches	4	5	6	8	10	12	14
Price, 1¼-inch, for 1¼-inch Iron Pipe ..... each	.41	.45	.48	.56	.64	.71	.79
" 1½ " " 1½ " " " ..... "	.51	.56	.60	.71	.82	.92	1.04
" 2 " " 2 " " " ..... "	.79	.85	.90	1.04	1.18	1.31	1.47
" 4 " " 4 " " " ..... "	1.70	1.95	2.15	2.35	2.55	2.75	3.15

Length ..... inches	16	18	20	24	30	36	.....
Price, 1¼-inch, for 1¼-inch Iron Pipe ..... each	.86	.93	1.00	1.15	1.37	1.60	.....
" 1½ " " 1½ " " " ..... "	1.14	1.24	1.34	1.55	1.85	2.15	.....
" 2 " " 2 " " " ..... "	1.60	1.72	1.85	2.12	2.52	2.92	.....
" 4 " " 4 " " " ..... "	3.35	3.55	3.75	4.25	4.75	5.70	.....

BENT, STANDARD

Length of Outlet ..... inches	12 or less	13	14	15	16	17	18	19	20
Price, 1¼-inch Long Inlet ..... each	.85	.88	.92	.93	.96	1.00	1.01	1.04	1.06
" 1½ " " " ..... "	1.15	1.20	1.24	1.25	1.30	1.34	1.36	1.41	1.43
" 2 " " " ..... "	1.71	1.77	1.84	1.86	1.92	1.99	2.01	2.07	2.11
" 3 " " " ..... "	2.99	3.10	3.21	3.25	3.36	3.47	3.50	3.61	3.68
" 4 " " " ..... "	3.78	3.90	4.02	4.07	4.19	4.31	4.36	4.48	4.55
" 1¼ " Short " ..... "	.79	.82	.86	.86	.89	.93	.94	.97	.99
" 1½ " " " ..... "	1.04	1.09	1.13	1.15	1.20	1.24	1.25	1.30	1.32
" 2 " " " ..... "	1.51	1.57	1.64	1.66	1.72	1.79	1.81	1.87	1.91
" 3 " " " ..... "	2.65	2.76	2.87	2.91	3.02	3.13	3.16	3.27	3.33
" 4 " " " ..... "	3.33	3.45	3.57	3.63	3.75	3.87	3.93	4.05	4.11

BENT, EXTRA HEAVY

Length of Outlet ..... inches	12 or less	13	14	15	16	17	18	19	20
Price, 1¼-inch Long Inlet ..... each	1.09	1.14	1.19	1.21	1.26	1.31	1.33	1.38	1.41
" 1½ " " " ..... "	1.55	1.62	1.69	1.72	1.79	1.86	1.89	1.96	2.00
" 2 " " " ..... "	2.07	2.16	2.24	2.28	2.37	2.45	2.48	2.56	2.62
" 3 " " " ..... "	3.22	3.34	3.46	3.51	3.63	3.75	3.80	3.92	4.00
" 4 " " " ..... "	4.25	4.40	4.55	4.61	4.76	4.91	4.97	5.12	5.21
" 1¼ " Short " ..... "	.99	1.04	1.09	1.11	1.16	1.21	1.23	1.28	1.31
" 1½ " " " ..... "	1.38	1.45	1.52	1.55	1.62	1.69	1.72	1.79	1.83
" 2 " " " ..... "	1.80	1.89	1.97	2.00	2.09	2.17	2.21	2.30	2.35
" 3 " " " ..... "	2.83	2.95	3.07	3.13	3.25	3.37	3.42	3.54	3.61
" 4 " " " ..... "	3.72	3.87	4.02	4.08	4.23	4.38	4.44	4.59	4.67

LEAD AND BLOCK TIN PIPE

LEAD PIPE

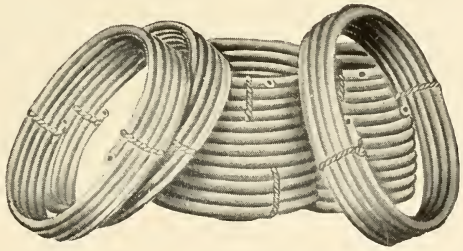


Plate E5211

Inside Caliber Inches	Aqueduct			Extra Light			Light			Medium			Strong			Extra Strong			Double Ex. Strong		
	Weight per Foot		Average Length of Coil Feet	Weight per Foot		Average Length of Coil Feet	Weight per Foot		Average Length of Coil Feet	Weight per Foot		Average Length of Coil Feet	Weight per Foot		Average Length of Coil Feet	Weight per Foot		Average Length of Coil Feet	Weight per Foot		Average Length of Coil Feet
	Pounds	Ounces		Pounds	Ounces		Pounds	Ounces		Pounds	Ounces		Pounds	Ounces		Pounds	Ounces		Pounds	Ounces	
3/8	...	8	175	...	9	155	...	12	235	1	...	175	1	8	120	2	...	90	2	10	...
1/2	...	10	140	...	12	235	1	...	175	1	4	140	1	12	115	2	8	70	3	...	60
5/8	...	12	100	1	4	140	1	12	100	2	...	85	2	8	80	3	...	58	3	8	50
3/4	1	...	85	1	8	115	2	...	85	2	4	75	3	...	67	3	8	48	4	...	44
7/8	1	8	55	2	...	85	2	8	40	3	...	58	3	8	48	...	...	...	...	...	...
1	1	8	55	2	...	85	2	8	70	3	4	53	4	...	50	4	12	35	5	8	30
1 1/4	2	...	50	2	8	70	3	...	55	3	12	48	4	12	35	6	...	28	6	12	24
1 1/2	3	...	34	3	8	42	4	...	40	5	...	32	6	...	36	7	8	20	9	...	17
1 3/4	3	...	.....	3	12	40	4	8	35	5	8	28	6	8	23	8	...	20	...	...	...
2	3	...	11	4	...	40	5	...	30	7	...	22	8	...	18	9	...	16	10	8	15
2 1/2	4	...	12	...	...	.....	6	...	12	8	...	12	11	...	12	14	...	12	17	...	12
3	4	...	12	4	12	12	6	3	12	9	...	12	12	...	12	16	...	12	20	...	12
3 1/2	...	...	.....	5	...	12	...	...	.....	...	...	.....	15	...	12	18	...	12	...	...	...
4	5	...	12	6	...	12	8	...	12	10	...	12	16	...	12	21	...	12	25	...	12
4 1/2	6	...	12	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	...	...	...	...

BLOCK TIN PIPE

Inside Diameter.....inches	1/4	3/8	1/2	5/8	3/4	1
Weight, per Foot....ounces	3 and 5	4, 5, 6, 8 and 10	4 1/2, 5, 6 and 8	8 and 10	10 and 12	15 and 18

Inside Diameter.....inches	1 1/4	1 1/2	2
Weight, per foot.....pounds	1 1/4 and 1 3/4	1 1/2 and 2	3 and 4

SHEET LEAD, ETC.

SHEET LEAD

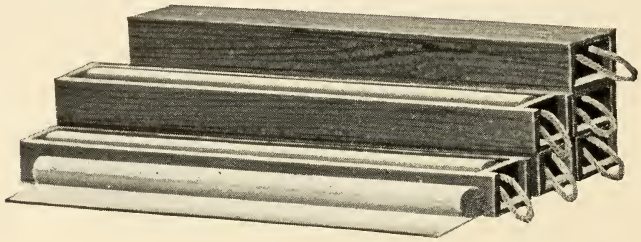


Plate E5221

Weight per Square Foot Pounds	Approximate Thickness — Decimals Inches	Nearest Fraction Inches	Birmingham Gauge Number	Average Size of Sheet — Width — Feet	Inches	Length Feet	Average Weight per Roll Pounds
1½	.0255	1/128	23	7	4	18	225
2	.0340	1/32	20	7	6	18	270
2½	.0425	5/128	19	8	3	19	390
3	.0510	3/64	18	8	3	19	475
3½	.0595	7/128	17	8	3	19	560
4	.0680	1/16	16	8	6	20	680
5	.0850	5/64	14	8	6	20	850
6	.1010	7/64	12	8	9	22	1050
7	.1180	15/128	11	8	9	22	1300
8	.1350	1/8	10	8	9	25	1600

PIG LEAD

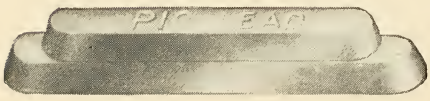


Plate E5222

BAR TIN

Plate E5223

CALKING LEAD

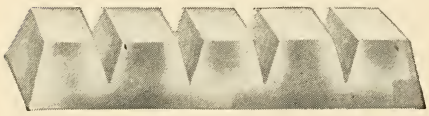


Plate E5224

GENUINE BABBITT METAL

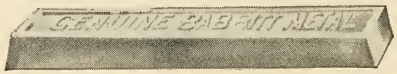


Plate E5225

WIPING SOLDER

Plate E5226

HALF AND HALF SOLDER

Plate E5227

Prices at market rates.

CAST IRON SOIL PIPE

FIVE-FOOT LENGTHS

SINGLE HUB

Plate E5231

Revised list prices adopted March 8, 1915

Size.....inches	2	3	4	5	6	7	8	10	12	15
Price, Standard....per length	1.30	1.75	2.30	2.90	3.50	7.00	7.00	12.00	15.00	28.00
" Extra Heavy "	2.00	3.10	4.20	5.50	6.50	11.00	11.00	18.00	22.00	40.00

DOUBLE HUB

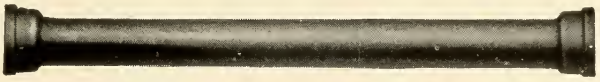


Plate E5232

Size.....inches	2	3	4	5	6	7	8	10	12	15
Price, Standard....per length	1.40	1.85	2.40	3.10	3.70	8.00	8.00	13.00	16.00	29.00
" Extra Heavy "	2.10	3.25	4.40	5.70	6.80	12.00	12.00	19.00	23.00	42.00

APPROXIMATE WEIGHTS OF SOIL PIPE AND FITTINGS

Style.....	Standard								Extra Heavy							
Size.....inches	2	3	4	5	6	8	10	12	2	3	4	5	6	8	10	12
Pipe, lbs.....per length	18	26	35	45	55	85	115	165	27½	47½	65	85	100	170	225	270
Quarter Bends, lbs..each	4½	7	10½	13	16½	33	54	58½	6¾	10½	15	19	23½	52	80	95
Sixth " " .. "	4	6½	9	11½	14	30	30	48	6	9¼	13	16½	20	44	50	90
Eighth " " .. "	3½	6	8½	10½	13	24	38	42½	5½	8½	12¼	15¼	18¼	40	56	80
T Branch, " .. "	7	11	14½	18½	23	33	42	102	10¼	15¼	21	26½	32½	60	75	166
San. T Branch, " .. "	7½	12	16	20	24	49	100	....	11	16¼	22½	28	34½	80	135	210
Crosses, " .. "	9½	14	19	23½	28½	40	70	100	13¾	19¾	27	33½	40½	92	116	176
San. Cross " .. "	10½	15½	20½	25½	31½	52	....	....	14½	22	29½	36½	44½	79	161	..
Y Branch, " .. "	7½	12	17	22	28	58	106	158	11	17	24	31½	39½	91	136	218
Half Y Branch, " .. "	7	11	15	19	24	..	....	....	10¼	15½	21½	27½	34	90	....	..
Double Y Branch, " .. "	10½	16	22½	30	36½	77	121	....	14¾	23	32	41½	52	100	153	266
Double Hubs, " .. "	4	5¾	7½	9	10½	16	21	35	5¾	8¼	10¾	12¾	14¾	30	35	45
S Traps, " .. "	8½	14	21	28½	37½	94	....	....	12	20	30	40½	53½	123	....	..
P " " .. "	7	12	17½	24½	31½	80	....	....	10½	17¼	25½	34½	45	100	....	..
Rung Traps, " .. "	8½	13½	19½	26	34	54	....	....	11¾	19	27½	37	48	110	....	..
Reducers, " .. "	..	4½	6	7½	9	8	21½	28	..	6¼	8½	10¾	12¾	15	28½	48

To determine the right and left-hand inlet or outlet in bends, branches and offsets, place them with the hub facing toward you and with spigot lower than hub. On traps, place in regular position with the hub end nearest you.

Long quarter bends are measured from the inside of hub nearest spigot to end of spigot. Other bends are measured from end of spigot to nearest point on inside base of hub. Long T's, Y's, etc., are measured from the base of the hub on main to the end of spigot.

CAST IRON SOIL PIPE FITTINGS

QUARTER BEND

Plate E5241

FIFTH BEND

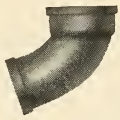


Plate E5242

SIXTH BEND

Plate E5243

EIGHTH BEND

Plate E5244

SIXTEENTH BEND

Plate E5245

QUARTER, FIFTH, SIXTH, EIGHTH AND SIXTEENTH BENDS

Size.....inches	2	3	4	5	6	8	10	12
Price, Quarter Bend, Standard.....each	.40	.55	.70	1.05	1.30	4.00	5.90	8.65
" Fifth " " ..... "	.45	.80	.80	1.05	1.30	4.00	5.90	8.65
" Sixth " " ..... "	.40	.60	.60	1.05	1.30	4.00	5.90	8.65
" Eighth " " ..... "	.35	.45	.60	.80	1.05	4.00	5.90	8.65
" Sixteenth " " ..... "	.35	.50	.60	.80	1.00	4.00	5.90	8.65
" Quarter " Extra Heavy..... "	.55	.70	.85	1.25	1.55	5.00	6.50	10.80
" Fifth " " " ..... "	.60	1.00	1.00	1.25	1.55	5.00	6.50	10.80
" Sixth " " " ..... "	.45	.75	.75	1.25	1.55	5.00	6.50	10.80
" Eighth " " " ..... "	.40	.55	.75	1.00	1.25	5.00	6.50	10.80
" Sixteenth " " " ..... "	.40	.70	.70	1.00	1.25	5.00	6.50	10.80

QUARTER BENDS WITH INLETS

R. H. SIDE INLET

Plate E5246

LOW HEEL HEEL INLET

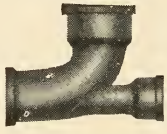


Plate E5247

HIGH HEEL

Plate E5248

RIGHT OR LEFT HAND SIDE INLET AND HEEL INLET

Size.....inches	2	3	3	4	4	4	5	5	5	6	6	6
" of Inlet.... "	2	2	3	2	3	4	2	3	4	2	3	4
Price, Standard..each	1.25	1.25	1.25	1.25	3.10	3.10	3.70	3.70	3.70	4.30	4.30	4.30
" Extra Heavy.. "	1.55	1.55	1.55	1.55	3.85	3.85	4.60	4.60	4.60	5.40	5.40	5.40

DOUBLE HUB QUARTER BEND

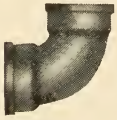


Plate E5249

DOUBLE HUB EIGHTH BEND

Plate E52410

DOUBLE HUB SIXTEENTH BEND

Plate E52411

DOUBLE HUB QUARTER, EIGHTH AND SIXTEENTH BENDS

Size.....inches	2	3	4	5	6
Price, Standard.....each	.75	.95	1.20	1.85	2.45
" Extra Heavy ..... "	.90	1.15	1.40	2.30	3.05

Special fittings not shown furnished to order.

CAST IRON SOIL PIPE FITTINGS

LONG QUARTER BEND

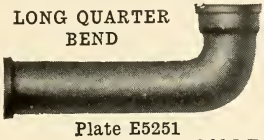


Plate E5251

LONG EIGHTH BEND

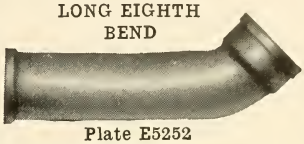


Plate E5252

LONG QUARTER AND EIGHTH BENDS

Size ..... inches	2	2	2	3	3	3	4	4	4	4
Length in Clear ..... inches	12	18	24	12	18	24	12	18	24	30
Price, Standard ..... each	.90	1.05	1.50	1.50	1.85	2.25	1.25	1.50	2.75	3.85
" Extra Heavy ..... "	1.10	1.30	1.85	1.85	2.30	2.75	1.55	1.85	3.40	4.80

Size ..... inches	4	5	5	5	5	6	6	6	8	....
Length in Clear ..... inches	36	12	18	24	36	12	18	24	18	....
Price, Standard ..... each	4.90	3.70	4.30	4.90	5.25	4.30	5.00	5.50	7.50	....
" Extra Heavy ..... "	6.15	4.60	5.40	6.15	6.55	5.40	6.15	6.90	10.00	....

REILLY LONG SWEEP BENDS

PLAIN

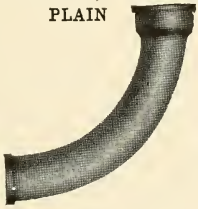


Plate E5253

WITH FOOT REST

Plate E5254

Size ..... inches	4	5	6	4x2	5x4
Price, Standard Plain ..... each	2.80	4.00	4.80	2.15	2.80
" Extra Heavy ..... "	3.50	5.00	6.00	2.70	3.50
" " " with Foot Rest ..... "	4.50	6.25	7.50	3.70	4.75

SANITARY LONG SWEEP

Plate E5255

QUARTER BENDS

SHORT SWEEP

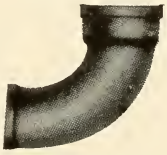


Plate E5256

DOUBLE

Plate E5257

LONG SWEEP

Size ..... inches	2	3	4	5	6	7	8	10
Price, Standard ..... each	.75	.95	1.25	1.70	2.75	7.55	6.00	8.00
" Extra Heavy ..... "	.90	1.15	1.55	2.00	3.40	9.45	7.50	10.00

SHORT SWEEP

Size ..... inches	2	3	4	5	6	8	10
Price, Standard ..... each	.60	.90	1.15	1.55	2.50	4.80	6.80
" Extra Heavy ..... "	.75	1.10	1.40	1.85	3.10	6.00	8.50

DOUBLE

Size ..... inches	2x2	3x2	3x3	4x2	4x3	4x4
Price, Standard ..... each	1.50	2.45	2.55	2.80	2.80	2.80
" Extra Heavy ..... "	1.85	3.05	3.20	3.45	3.45	3.45

CAST IRON SOIL PIPE FITTINGS

T BRANCH

Plate E5261

T BRANCH
R. H. Side Inlet

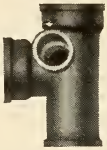


Plate E5262

T BRANCH
All Hub Ends

Plate E5263

T BRANCHES

Size.....inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3	5x4	5x5
Price, Standard.....each	.55	.75	.85	.85	1.00	1.15	1.20	1.25	1.40	1.65
" Extra Heavy.... "	.75	.90	1.10	1.10	1.25	1.40	1.45	1.55	1.70	2.00

Size.....inches	6x2	6x3	6x4	6x5	6x6	7	8	10	12	15
Price, Standard.....each	1.80	1.80	1.80	2.00	2.00	7.00	6.00	10.80	15.10	33.60
" Extra Heavy.... "	2.15	2.15	2.15	2.45	2.45	9.80	9.00	15.10	19.40	42.00

T BRANCHES, SIDE INLET

Size of Inlet.....inches	2	3	4	5	6
Extra for Inlets add to above List.....each	1.00	1.25	1.50	2.00	2.50
" " Brass Trap Screws, including Inlets, add to above List..... "	1.50	2.00	2.50	3.00	3.50

T BRANCHES, ALL HUB ENDS

Size.....inches	2	3	4	5	6
Price, Standard.....each	2.25	3.45	4.65	5.65	7.35
" Extra Heavy..... "	2.75	4.30	5.85	7.05	9.20

T BRANCH
Tapped for Iron Pipe

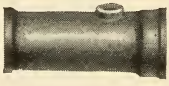


Plate E5264

T BRANCH
With Handhole and Cover

Plate E5265

LONG T BRANCH

Plate E5266

T BRANCHES, TAPPED FOR IRON PIPE

Size.....inches	2	3	4	5	6
Thread.....inches	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2
Price, Standard.....each	.70	.85	1.00	1.60	2.50
" Extra Heavy..... "	.85	1.10	1.25	2.00	3.10

T BRANCHES, WITH HANDHOLE CLEANOUT

Size.....inches	2	3	4	5	6	8
Price, Standard.....each	1.05	1.70	1.85	2.45	3.70	5.00
" Extra Heavy..... "	1.25	2.15	2.30	3.05	4.60	7.50

LONG T BRANCHES

Size.....inches	2	2	2	2	2	3	3	3	3	3	4	4
Length in Clear.....inches	12	18	24	30	36	12	18	24	30	36	12	18
Price, Standard.....each	1.20	2.00	2.25	2.45	2.70	1.45	2.60	3.10	3.55	4.05	2.80	3.50
" Extra Heavy ..... "	1.50	2.45	2.75	3.05	3.35	1.80	3.25	3.85	4.45	5.05	3.50	4.30

Size.....inches	4	4	4	5	5	5	5	6	6	6	6	....
Length in Clear.....inches	24	30	36	18	24	30	36	18	24	30	36	....
Price, Standard.....each	4.10	4.65	5.35	4.20	4.95	5.70	6.60	4.90	5.80	6.80	7.70	....
" Extra Heavy ..... "	5.05	5.85	6.60	5.25	6.15	7.10	8.15	6.15	7.25	8.45	9.55	....

CAST IRON SOIL PIPE FITTINGS

SANITARY T BRANCH

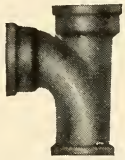


Plate E5271

SANITARY T BRANCH
R. H. SIDE INLET

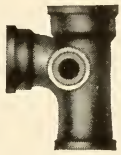


Plate E5272

SANITARY T BRANCHES

Size .....inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3	5x4	5x5
Price, Standard.....each	.55	.75	.85	.85	1.00	1.15	1.20	1.25	1.40	1.65
" Extra Heavy..... "	.75	.90	1.10	1.10	1.25	1.40	1.45	1.55	1.70	2.00
Size.....inches	6x2	6x3	6x4	6x5	6x6	7	8	10	12	15
Price, Standard.....each	1.80	1.80	1.80	2.00	2.00	7.00	6.00	10.80	15.10	33.60
" Extra Heavy..... "	2.15	2.15	2.15	2.45	2.45	9.80	9.00	15.10	19.40	42.00

SANITARY T BRANCHES, SIDE INLET

Size of Inlet.....inches	2	3	4	5	6
Price, Extra, for Inlets add to above List.....each	1.00	1.25	1.50	2.00	2.50
" " " Brass Trap Screws, including Inlets, add to above List "	1.50	2.00	2.50	3.00	3.50

SANITARY T BRANCH
TAPPED FOR IRON PIPE

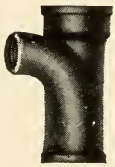


Plate E5273

LONG SANITARY T BRANCH

Plate E5274

SANITARY T BRANCHES, TAPPED FOR IRON PIPE

Size.....inches	2	3	4	5	6
Thread..... ... "	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½ 2
Price, Standard.....each	.75	.95	1.25	1.85	2.95
" Extra Heavy.... "	.90	1.10	1.55	2.30	3.70

LONG SANITARY T BRANCHES

Size.....inches	2	2	2	2	2	3	3	3
Length in the Clear..... "	12	18	24	30	36	12	18	24
Price, Standard.....each	1.20	2.00	2.25	2.45	2.70	1.45	2.60	3.10
" Extra Heavy..... "	1.50	2.45	2.75	3.05	3.35	1.80	3.25	3.85
Size.....inches	3	3	4	4	4	4	4	5
Length in the Clear..... "	30	36	12	18	24	30	36	18
Price, Standard.....each	3.55	4.05	2.80	3.50	4.10	4.65	5.35	4.20
" Extra Heavy..... "	4.45	5.05	3.50	4.30	5.05	5.85	6.60	5.25
Size.....inches	5	5	5	6	6	6	6	....
Length in the Clear..... "	24	30	36	18	24	30	36	....
Price, Standard.....each	4.95	5.70	6.60	4.90	5.80	6.80	7.70	....
" Extra Heavy ..... "	6.15	7.10	8.15	6.15	7.25	8.45	9.55	....

CAST IRON SOIL PIPE FITTINGS

Y BRANCH

Plate E5281

HALF Y BRANCH

Plate E5282

Y BRANCH
R. H. Side Inlet

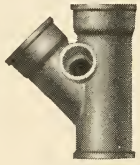


Plate E5283

HALF Y BRANCH
R. H. Side Inlet

Plate E5284

Y AND HALF Y BRANCHES

Size.....inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3	5x4	5x5
Price, Standard.....each	.55	.75	.85	.85	1.00	1.15	1.20	1.25	1.40	1.65
" Extra Heavy..... "	.75	.90	1.10	1.10	1.25	1.40	1.45	1.55	1.70	2.00

Size.....inches	6x2	6x3	6x4	6x5	6x6	7	8	10	12	15
Price, Standard.....each	1.80	1.80	1.80	2.00	2.00	7.00	6.00	10.80	15.10	33.60
" Extra Heavy..... "	2.15	2.15	2.15	2.45	2.45	9.80	9.00	15.10	19.40	42.00

Y AND HALF Y BRANCHES, SIDE INLET

Size of Inlet.....inches	2	3	4	5	6
Price, Extra, for Inlets, add to above List.....each	1.00	1.25	1.50	2.00	2.50
" " " Brass Trap Screws, including Inlets, add to above list.... "	1.50	2.00	2.50	3.00	3.50

INVERTED Y BRANCH

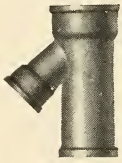


Plate E5285

INVERTED Y BRANCH
Tapped for Iron Pipe

Plate E5286

LONG Y BRANCH

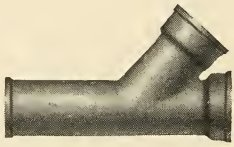


Plate E5287

INVERTED Y BRANCHES

Size.....inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3	5x4	5x5	6x2	6x3	6x4	6x5	6x6
Price, Standard. .each	1.00	1.40	1.40	1.70	1.70	1.70	2.45	2.45	3.10	3.40	3.70	3.70	4.95	4.95	4.95
" Extra Heavy "	1.25	1.85	1.85	2.15	2.15	2.15	3.05	3.05	3.85	4.60	4.60	4.60	6.15	6.15	6.15

INVERTED Y BRANCHES, TAPPED FOR IRON PIPE

Size.....inches	2	3	4	5	6
Thread.....inches	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2
Price, Standard.....each	1.40	2.00	2.20	2.80	3.40
" Extra Heavy..... "	1.70	2.45	2.75	3.50	4.25

LONG Y BRANCHES

Size.....inches	2	2	2	2	2	3	3	3	3	3	4	4
Length in the Clear...inches	12	18	24	30	36	12	18	24	30	36	12	18
Price, Standard.....each	1.20	2.00	2.25	2.45	2.70	1.45	2.60	3.10	3.55	4.05	2.80	3.50
" Extra Heavy..... "	1.50	2.45	2.75	3.05	3.35	1.80	3.25	3.85	4.45	5.05	3.50	4.30

Size.....inches	4	4	4	5	5	5	5	6	6	6	6	....
Length in the Clear...inches	24	30	36	18	24	30	36	18	24	30	36	....
Price, Standard.....each	4.10	4.65	5.35	4.20	4.95	5.70	6.60	4.90	5.80	6.80	7.70	....
" Extra Heavy..... "	5.05	5.85	6.60	5.25	6.15	7.10	8.15	6.15	7.25	8.45	9.55	....

CAST IRON SOIL PIPE FITTINGS

DOUBLE Y BRANCH

Plate E-5291

DOUBLE HALF Y BRANCH

Plate E-5292

DOUBLE Y BRANCH Side Inlet

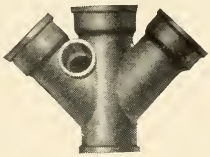


Plate E-5293

DOUBLE HALF Y BRANCH Side Inlet

Plate E-5294

DOUBLE Y AND DOUBLE HALF Y BRANCHES

Size ..... inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2
Price, Standard ..... each	1.25	1.65	1.65	1.80	1.80	1.80	4.95
" Extra Heavy ..... "	1.55	2.00	2.00	2.15	2.15	2.15	6.15
Size ..... inches	5x3	5x4	5x5	6x2	6x3	6x4	6x5
Price, Standard ..... each	4.95	4.95	4.95	6.15	6.15	6.15	6.15
" Extra Heavy ..... "	6.15	6.15	6.15	7.70	7.70	7.70	7.70
Size ..... inches	6x6	7x7	8x8	10x10	12x10	....	....
Price, Standard ..... each	6.15	10.50	9.00	16.20	22.70	....	....
" Extra Heavy ..... "	7.70	14.70	13.50	22.65	29.15	....	....

DOUBLE Y AND DOUBLE HALF Y BRANCHES, SIDE INLET

Size ..... inches	2	3	4	5	6
Price, Extra for Inlets, add to above List, ... each	1.00	1.25	1.50	2.00	2.50
" " " Brass Trap Screws, including Inlets, add to above List ..... "	1.50	2.00	2.50	3.00	3.50

VENTILATING BRANCH

Plate E-5295

VENTILATING BRANCH Tapped for Iron Pipe

Plate E-5296

VENTILATING BRANCHES

Size ..... inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3
Price, Standard ..... each	.90	1.15	1.15	1.15	1.40	1.40	4.35	4.35
" Extra Heavy ..... "	1.10	1.40	1.40	1.40	1.85	1.85	5.40	5.40
Size ..... inches	5x4	5x5	6x2	6x3	6x4	6x5	6x6	....
Price, Standard ..... each	4.35	4.35	6.15	6.15	6.15	6.15	6.15	....
" Extra Heavy ..... "	5.40	5.40	7.70	7.70	7.70	7.70	7.70	....

VENTILATING BRANCHES, TAPPED FOR IRON PIPE

Size ..... inches	2	3	4	5	6
Thread ..... inches	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2
Price, Standard ..... each	1.40	2.00	2.20	2.80	3.40
" Extra Heavy ..... "	1.70	2.45	2.75	3.50	4.25

CAST IRON SOIL PIPE FITTINGS

COMBINATION Y AND EIGHTH BEND

Plate E5301

UPRIGHT Y BRANCH

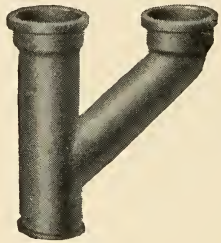


Plate E5302

COMBINATION Y AND EIGHTH BENDS

Size.....inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3
Price, Standard.....each	1.05	1.70	1.70	1.70	1.70	1.70	3.70	3.70
" Extra Heavy ..... "	1.30	2.15	2.15	2.15	2.15	2.15	4.60	4.60
Size.....inches	5x4	5x5	6x2	6x3	6x4	6x5	6x6	....
Price, Standard.....each	3.70	3.70	5.55	5.55	5.55	5.55	5.55	....
" Extra Heavy ..... "	4.60	4.60	6.90	6.90	6.90	6.90	6.90	....

UPRIGHT Y BRANCHES

Size.....inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3
Price, Standard.....each	1.85	1.85	1.85	1.85	3.10	3.10	3.70	4.35
" Extra Heavy ..... "	2.30	2.30	2.30	2.30	3.85	3.85	4.60	5.40
Size.....inches	5x4	5x5	6x2	6x3	6x4	6x5	6x6	....
Price, Standard.....each	4.90	5.50	4.90	4.90	5.50	6.15	7.35	....
" Extra Heavy ..... "	6.15	6.90	6.15	6.15	6.90	7.70	9.20	....

DOUBLE INVERTED Y BRANCH

Plate E5303

REDUCING SANITARY T BRANCH

Plate E5304

SPECIAL REDUCING Y BRANCH

Plate E5305

DOUBLE INVERTED Y BRANCHES

Size.....inches	2x2	3x2	3x3	4x2	4x3	4x4
Price, Standard .....each	2.45	3.10	3.10	3.70	3.70	3.70
" Extra Heavy ..... "	3.05	3.85	3.85	4.60	4.60	4.60

REDUCING SANITARY T BRANCHES

Size.....inches	3x2x3	4x2x4	4x3x4	5x4x4	5x4x5	6x4x4	6x4x5	6x4x6
Price, Standard.....each	2.50	3.00	2.95	3.80	3.80	4.45	4.60	4.60
" Extra Heavy ..... "	3.15	3.70	3.70	4.75	4.75	5.55	5.75	5.75

SPECIAL REDUCING Y BRANCHES

Size.....inches	3x2x3	4x2x4	4x3x4	5x4x4	5x4x5	6x4x4	6x4x5	6x5x4	6x5x5	6x4x6	6x5x6
Price, Standard ...each	2.50	2.95	2.95	3.80	4.60	4.45	4.60	4.60	4.60	4.60	4.60
" Extra Heavy "	3.15	3.70	3.70	4.75	5.75	5.55	5.75	5.75	5.75	5.75	5.75

CAST IRON SOIL PIPE FITTINGS

CROSS

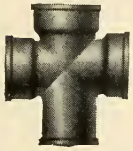


Plate E5311

SANITARY CROSS

Plate E5312

CROSS
Side Inlet

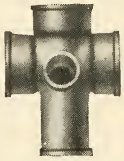


Plate E5313

SANITARY CROSS
Side Inlet

Plate E5314

CROSSES

Size ..... inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3	5x4	5x5
Price, Standard ..... each	1.25	1.65	1.65	1.80	1.80	1.80	4.95	4.95	4.95	4.95
" Extra Heavy ..... "	1.55	2.00	2.00	2.15	2.15	2.15	6.15	6.15	6.15	6.15

Size ..... inches	6x2	6x3	6x4	6x5	6x6	7	8	10	12x10	....
Price, Standard ..... each	6.15	6.15	6.15	6.15	6.15	10.50	9.00	16.20	22.70	....
" Extra Heavy ..... "	7.70	7.70	7.70	7.70	7.70	14.70	13.50	22.65	29.15	....

SANITARY CROSSES

Size ..... inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3	5x4
Price, Standard ..... each	1.25	1.65	1.65	1.80	1.80	1.80	4.95	4.95	4.95
" Extra Heavy ..... "	1.55	2.00	2.00	2.15	2.15	2.15	6.15	6.15	6.15

Size ..... inches	5x5	6x2	6x3	6x4	6x5	6x6	8	10	12x10
Price, Standard ..... each	4.95	6.15	6.15	6.15	6.15	6.15	9.00	16.20	22.70
" Extra Heavy ..... "	6.15	7.70	7.70	7.70	7.70	7.70	13.50	22.65	29.15

CROSSES AND SANITARY CROSSES, SIDE INLET

Size ..... inches	2	3	4	5	6
Price, Extra for Inlets to be added to Above Lists. . . . each	1.00	1.25	1.50	2.00	2.50

CROSS
Tapped for Iron Pipe

Plate E5315

SANITARY CROSS
Tapped for Iron Pipe

Plate E5316

CROSSES, TAPPED FOR IRON PIPE

Size ..... inches	2	3	4	5	6
Thread ..... inches	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2
Price, Standard ..... each	1.15	1.25	1.40	2.25	3.45
" Extra Heavy ..... "	1.40	1.55	1.70	2.80	4.30

SANITARY CROSSES, TAPPED FOR IRON PIPE

Size ..... inches	2	3	4	5	6
Thread ..... inches	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2	1¼, 1½, 2
Price, Standard ..... each	1.25	1.50	1.75	2.75	4.10
" Extra Heavy ..... "	1.55	1.85	2.15	3.40	5.10

CAST IRON SOIL PIPE FITTINGS

OFFSET

Plate E5321

OFFSET WITH 2-INCH VENT

Plate E5322

EIGHTH BEND OFFSET

Plate E5323

INCREASERS AND OFFSETS HUB AND SPIGOT

Plate E5324

TAPPED FOR IRON PIPE

Plate E5325

OFFSETS

Size.....inches	2	2	2	2	2	2	2	2	2	2	2	2	2	3
Offset .....inches	2	4	6	8	10	12	14	16	18	20	22	24	26	2
Price, Standard, each	.60	.60	.75	.75	1.00	1.15	1.25	1.35	1.70	2.00	2.20	2.45	2.70	.95
" Extra Heavy.. "	.75	.75	.90	.90	1.25	1.40	1.55	1.70	2.15	2.45	2.75	3.05	3.35	1.15

Size.....inches	3	3	3	3	3	3	3	3	3	3	3	3	4	4
Offset .....inches	4	6	8	10	12	14	16	18	20	22	24	26	2	4
Price, Standard, each	1.00	1.10	1.25	1.50	1.65	1.90	2.10	2.30	2.75	3.10	3.70	4.15	1.00	1.00
" Extra Heavy.. "	1.25	1.40	1.55	1.85	2.00	2.30	2.60	2.90	3.40	3.85	4.60	5.20	1.25	1.25

Size.....inches	4	4	4	4	4	4	4	4	4	4	4	5	5	5
Offset .....inches	6	8	10	12	14	16	18	20	22	24	26	2	4	6
Price, Standard, each	1.10	1.25	1.50	1.60	1.90	2.00	2.30	2.60	3.10	3.70	4.35	2.45	2.45	2.65
" Extra Heavy.. "	1.40	1.55	1.85	2.00	2.45	3.40	3.55	4.30	4.60	5.05	5.45	3.05	3.05	3.40

Size.....inches	5	5	5	5	5	5	5	5	5	5	6	6	6	6
Offset .....inches	8	10	12	14	16	18	20	22	24	26	2	4	6	8
Price, Standard, each	3.00	3.50	3.65	5.05	5.35	5.85	6.15	6.30	6.50	6.75	3.35	3.35	3.35	3.70
" Extra Heavy.. "	3.80	4.00	4.45	6.30	6.60	7.25	7.55	7.85	8.15	8.45	4.15	4.15	4.15	4.60

Size.....inches	6	6	6	6	6	6	6	6	6	7	7	8	8	8
Offset .....inches	10	12	14	16	18	20	22	24	26	4	8	4	6	8
Price, Standard, each	4.30	4.95	6.15	6.75	7.10	7.40	7.70	8.10	8.45	10.10	12.30	8.00	9.60	10.40
" Extra Heavy.. "	5.40	6.15	7.70	8.30	8.75	9.20	9.65	10.10	10.55	12.60	15.40	11.00	12.00	13.00

Add to Above Lists for 2-inch Vent or Heel or Side Inlet.....each	1.00

EIGHTH BEND OFFSETS

Size.....inches	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
Offset ....inches	2	4	6	8	10	12	14	16	18	20	2	4	6	8	10
Price, Std. .each	.60	.60	.75	.75	1.00	1.15	1.25	1.35	1.70	2.00	.95	1.00	1.10	1.25	1.50
" Ex. Heavy "	.75	.75	.90	.90	1.25	1.40	1.55	1.70	2.15	2.50	1.15	1.25	1.40	1.55	1.85

Size.....inches	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4
Offset ....inches	12	14	16	18	20	2	4	6	8	10	12	14	16	18	20
Price, Std. .each	1.60	1.90	2.10	2.30	2.75	1.00	1.00	1.10	1.25	1.50	1.60	1.90	2.00	2.30	2.60
" Ex. Heavy "	2.00	2.30	2.60	2.90	3.40	1.25	1.25	1.40	1.55	1.85	2.00	2.45	3.40	3.55	4.30

Size.....inches	4	4	5	5	5	5	5	5	6	6	6	6	6	6	6
Offset ....inches	22	24	4	6	8	10	12	14	4	6	8	10	12	14	16
Price, Std. .each	3.10	3.70	2.50	2.85	3.15	3.35	3.70	5.25	3.45	3.45	3.80	4.50	5.10	6.40	6.90
" Ex. Heavy "	4.60	5.05	3.15	3.55	3.95	4.20	4.65	6.55	4.30	4.30	4.75	5.60	6.35	8.00	8.60

INCREASERS AND OFFSETS—TO OFFSET 6 INCHES

Size .....inches	1½x4	2x4	3x4	4x5	4x6	6x8
Price, Hub and Spigot, Extra Heavy.....each	....	2.00	2.80	3.00	3.25	4.00
" Tapped for I. P., " " ..... "	2.10	2.25	....	....	....	....

CAST IRON SOIL PIPE FITTINGS

EXTENSION PIECE

Plate E5331

INCREASER

Plate E5332

INCREASER TAPPED FOR IRON PIPE

Plate E5333

SHORT INCREASER TAPPED FOR IRON PIPE

Plate E5334

EXTENSION PIECES

Size..... inches	2x4	2x6	2x8	2x10	2x12	2x14	2x16	2x18	2x20	2x22	2x24
Price, Standard ...each	.60	.60	.75	.90	1.00	1.15	1.25	1.40	1.50	2.00	2.50
" Extra Heavy "	.75	.75	.90	1.10	1.25	1.40	1.55	1.70	1.85	2.45	3.05
Size..... inches	3x4	3x6	3x8	3x10	3x12	3x14	3x16	3x18	3x20	3x22	3x24
Price, Standard ...each	1.00	1.00	1.10	1.25	1.50	1.75	1.95	2.20	2.45	2.75	2.95
" Extra Heavy "	1.25	1.25	1.40	1.55	1.85	2.15	2.45	2.75	3.05	3.40	3.70
Size..... inches	4x4	4x6	4x8	4x10	4x12	4x14	4x16	4x18	4x20	4x22	4x24
Price, Standard ...each	1.25	1.25	1.40	1.50	1.70	1.85	2.15	2.45	2.95	3.40	3.70
" Extra Heavy "	1.55	1.55	1.70	1.85	2.00	2.30	2.60	3.05	3.70	4.30	4.60
Size..... inches	5x6	5x8	5x10	5x12	5x14	5x16	5x18	5x20	5x22	6x4	6x6
Price, Standard ...each	1.85	2.10	2.30	2.45	2.70	2.95	3.20	3.70	4.20	2.45	2.45
" Extra Heavy "	2.30	2.60	2.90	3.05	3.40	3.70	4.00	4.60	5.25	3.05	3.05
Size..... inches	6x8	6x10	6x12	6x14	6x16	6x18	6x20	6x22	6x24	6x30	6x36
Price, Standard ...each	2.70	2.95	3.20	3.45	3.90	4.45	4.90	5.50	6.15	7.85	8.00
" Extra Heavy "	3.40	3.70	4.00	4.30	4.90	5.55	6.15	6.90	7.70	9.80	10.00

INCREASERS—HUB END TO GOVERN PRICE

Size..... inches	2x3	2x4	2x5	2x6	3x4	3x5	3x6	4x5	4x6	4x8
Price, Standard.....each	.90	.90	1.25	1.85	1.85	1.85	1.85	1.85	1.85	1.85
" Extra Heavy..... "	1.10	1.10	1.55	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Size..... inches	5x6	5x8	5x10	6x7	6x8	6x10	7x8	8x10	8x12	10x12
Price, Standard.....each	2.45	2.45	2.65	2.25	2.00	3.40	4.30	4.35	7.35	9.20
" Extra Heavy..... "	3.05	3.05	3.35	3.85	5.00	4.25	5.40	7.00	9.20	11.50

INCREASERS, TAPPED FOR IRON PIPE

Size, Hub.....inches	2	2	3	4	4	5	3	4
Thread..... inches	1¼	1½	1½	1¼	1½	1½	2	2
Price, Standard.....each	.60	.60	1.40	1.50	1.50	2.10	1.40	1.50
" Extra Heavy..... "	.75	.75	1.70	1.85	1.85	2.45	1.70	1.85
" Short, Standard..... "	.75	.75	.90	1.00	1.00	1.25	.90	1.00
" " Extra Heavy.. "	.90	.90	1.10	1.25	1.25	1.55	1.10	1.25
Size, Hub.....inches	5	6	4	5	5	6	6	....
Thread..... inches	2	2	3	3	4	4	5	....
Price, Standard.....each	2.10	2.40	1.85	2.10	2.50	2.90	3.30	....
" Extra Heavy..... "	2.45	3.00	2.30	2.60	3.10	3.60	4.10	....
" Short, Standard ..... "	1.25	1.85	1.40	1.60	....	....	....	....
" " Extra Heavy.. "	1.55	2.30	1.75	2.00	....	....	....	....

CAST IRON SOIL PIPE FITTINGS

LONG INCREASERS

FOR CALKING

Plate E5341

TAPPED FOR IRON PIPE

Plate E5342

FOR CALKING

Size.....inches	2x3	2x4				3x4		3x5	4x5	
Length.....inches	30	24	30	36	48	12	24	24	12	24
Price, Standard .....each	1.60	1.25	1.65	2.00	2.50	1.25	2.00	2.00	1.60	2.30
" Extra Heavy.... "	2.00	1.55	2.00	2.45	3.10	1.55	2.45	2.45	2.00	2.85

Size.....inches	4x5		4x6				5x6		5x7	....
Length.....inches	30	36	24	30	36	48	12	30	48	....
Price, Standard.....each	2.00	3.70	3.70	3.70	4.30	4.95	1.95	5.45	12.30	....
" Extra Heavy.... "	2.45	4.60	4.60	4.60	5.40	6.15	2.45	6.80	15.40	....

TAPPED FOR IRON PIPE

Spigot.....inches	4	4	4	4	4
Length.....inches	24	30	36	48	36
Thread..... "	2	2	2	2	2½
Price, Standard.....each	2.25	2.40	2.60	3.00	2.80
" Extra Heavy..... "	2.75	3.00	3.25	3.75	3.50

TAPPED ONE SIDE

Plate E5343

TAPPED BOTH SIDES

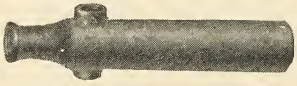


Plate E5344

BENT BRANCH, TAPPED

Plate E5345

TAPPED INLET AND ONE SIDE

Size.....inches	2x4	2x4	3x4	4x5	4x6	4x6	4x6	5x6	5x6
Length.....inches	24	48	24	30	30	36	48	30	36
Side Outlet Thread..... "	1½or2	1½	1½	1½or2	2	1½	2	2	2
Price, Standard.....each	2.45	3.30	2.00	3.00	3.40	3.60	5.05	3.90	4.20
" Extra Heavy..... "	3.05	4.15	2.50	3.75	4.25	4.50	6.30	4.85	5.25

TAPPED INLET AND BOTH SIDES

Size.....inches	2x4	2x4	3x4	4x5	4x6	5x6	5x6
Length.....inches	24	48	24	30	48	30	36
Side Outlets Thread ..... "	1½	1½	1½	2	2	2	2
Price, Standard.....each	2.85	3.70	2.40	3.40	5.45	4.30	4.60
" Extra Heavy..... "	3.55	4.65	3.00	4.25	6.80	5.35	5.75

FOR CALKING, WITH BENT BRANCH TAPPED

Size ..... inches	2x4	2x4	3x4	4x5	4x6
Length.....inches	24	48	24	30	30
Branch Thread..... "	1½	1½	1½	2	2
Price, Extra Heavy.....each	3.30	4.40	2.75	4.00	5.10

FOR CALKING, WITH SIDE HUB—NOT ILLUSTRATED

Size.....inches	2x2	2x4	3x4	4x5	4x6	5x6	5x6
Length.....inches	24	48	24	30	48	30	36
Side Hub..... "	2	2	2	3	3	3	4
Price, Standard.....each	1.80	2.50	1.90	3.00	4.15	3.60	4.10
" Extra Heavy..... "	2.25	3.15	2.35	3.75	5.20	4.50	5.10

CAST IRON SOIL PIPE FITTINGS

PLAIN TRAPS

FULL S

Plate E5351

THREE-QUARTER S

Plate E5352

HALF S

Plate E5353

Size ..... inches	2	3	4	5	6	8
Price, Standard ..... each	.90	1.15	1.50	4.30	4.95	10.00
" Extra Heavy ..... "	1.10	1.40	1.85	5.40	6.15	13.00

TRAPS WITH BRASS TRAP SCREW

FULL S

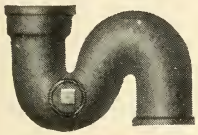


Plate E5354

THREE-QUARTER S

Plate E5355

HALF S

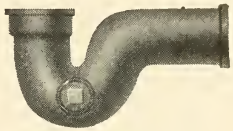


Plate E5356

Size ..... inches	2	3	4	5	6	8
Price, Standard ..... each	2.40	2.65	3.00	6.80	7.45	12.50
" Extra Heavy ..... "	2.60	2.90	3.35	7.90	8.65	15.50

TRAPS WITH TOP VENT

FULL S

Plate E5357

THREE-QUARTER S

Plate E5358

HALF S

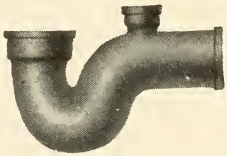


Plate E5359

Size ..... inches	2	3	3	4	4	4	5	5	5	5	6	6	6	6	6
Vent .... inches	2	2	3	2	3	4	2	3	4	5	2	3	4	5	6
Price, Standard . . each	1.20	1.35	1.35	2.20	2.20	2.20	4.00	4.00	4.00	4.00	4.80	4.80	4.80	4.80	4.80
" Extra Heavy "	1.50	1.70	1.70	2.75	2.75	2.75	5.00	5.00	5.00	5.00	6.00	6.00	6.00	6.00	6.00

TRAPS WITH TOP VENT AND BRASS TRAP SCREW

FULL S

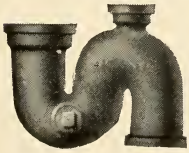


Plate E53510

THREE-QUARTER S

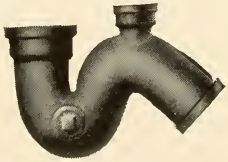


Plate E53511

HALF S

Plate E53512

Size ..... inches	2	3	3	4	4	4	5	5	5	5	6	6	6	6	6
Vent .... inches	2	2	3	2	3	4	2	3	4	5	2	3	4	5	6
Price, Standard . . each	2.70	2.85	2.85	3.70	3.70	3.70	6.50	6.50	6.50	6.50	7.30	7.30	7.30	7.30	7.30
" Extra Heavy "	3.00	3.20	3.20	4.25	4.25	4.25	7.50	7.50	7.50	7.50	8.50	8.50	8.50	8.50	8.50

CAST IRON SOIL PIPE FITTINGS

TRAPS WITH HANDHOLE AND COVER

FULL S

Plate E5361

THREE-QUARTER S

Plate E5362

HALF S

Plate E5363

Size.....inches	2	3	4	5	6	8
Price, Standard.....each	1.25	1.85	2.50	4.95	5.55	10.75
" Extra Heavy..... "	1.55	2.30	3.10	6.15	6.90	13.75

TRAPS WITH HANDHOLE AND COVER AND 2-INCH HEEL INLET

FULL S

Plate E5364

THREE-QUARTER S

Plate E5365

HALF S

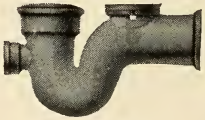


Plate E5366

Size.....inches	2	3	4	5	6
Price, Standard.....each	2.25	2.85	3.50	5.95	6.55
" Extra Heavy..... "	2.55	3.30	4.10	7.15	7.90

TRAPS WITH HANDHOLE AND COVER AND 2-INCH SIDE INLET

FULL S

Plate E5367

THREE-QUARTER S

Plate E5368

HALF S

Plate E5369

Size.....inches	2	3	4	5	6
Price, Standard.....each	2.25	2.85	3.50	5.95	6.55
" Extra Heavy..... "	2.55	3.30	4.10	7.15	7.90

RUNNING TRAPS

PLAIN

Plate E53610

WITH HANDHOLE AND COVER

Plate E53611

Description.....	Plain						With Handhole and Cover					
Size.....inches	2	3	4	5	6	8	2	3	4	5	6	8
Price, Standard, each	.90	1.15	1.50	4.30	4.95	10.00	1.25	1.85	2.50	4.95	5.55	10.75
" Ex. Hvy.. "	1.10	1.40	1.85	5.40	6.15	13.00	1.55	2.30	3.10	6.15	6.90	13.75

CAST IRON SOIL PIPE FITTINGS

RUNNING TRAP
WITH HUB VENT

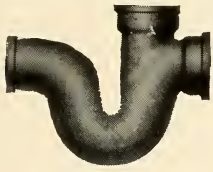


Plate E5371

RUNNING TRAP
WITH DOUBLE HUB VENT

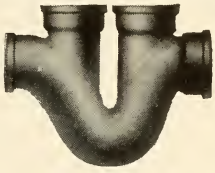


Plate E5372

RUNNING TRAPS WITH HUB VENT

Size.....inches	2	3	3	4	4	4	5	5
Vent..... "	2	2	3	2	3	4	2	3
Price, Standard.....each	1.20	1.35	1.35	2.20	2.20	2.20	4.00	4.00
" Extra Heavy.... "	1.50	1.70	1.70	2.75	2.75	2.75	5.00	5.00
Size.....inches	5	5	6	6	6	6	6	7
Vent..... "	4	5	2	3	4	5	6	6
Price, Standard.....each	4.00	4.00	4.80	4.80	4.80	4.80	4.80	14.00
" Extra Heavy..... "	5.00	5.00	6.00	6.00	6.00	6.00	6.00	16.80
Size.....inches	8	8	8	10	10	12	15	....
Vent..... "	4	6	8	6	8	6	6	....
Price, Standard.....each	11.60	12.00	12.00	19.45	23.00	29.35	67.00	....
" Extra Heavy... "	14.50	15.00	15.00	25.90	29.00	36.70	84.00	....

RUNNING TRAPS WITH DOUBLE HUB VENT

Size.....inches	2	3	3	4	4	4	5
Vent..... "	2	2	3	2	3	4	2
Price, Standard.....each	1.60	1.80	1.80	2.60	2.60	2.60	4.80
" Extra Heavy..... "	2.00	2.25	2.25	3.25	3.25	3.25	6.00
Size.....inches	5	5	5	6	6	6	6
Vent..... "	3	4	5	2	3	4	5
Price, Standard.....each	4.80	4.80	4.80	5.60	5.60	5.60	5.60
" Extra Heavy..... "	6.00	6.00	6.00	7.00	7.00	7.00	7.00
Size.....inches	6	7	8	8	10	12	12
Vent..... "	6	6	4	6	6	6	8
Price, Standard.....each	5.60	16.80	12.80	14.00	21.60	29.35	31.10
" Extra Heavy..... "	7.00	19.60	16.00	17.00	28.10	36.70	38.90

RUNNING TRAP
WITH Y BRANCH AND VENT

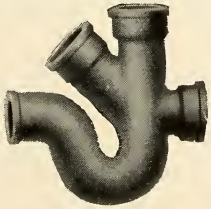


Plate E5373

RUNNING TRAP
WITH HALF Y BRANCH AND VENT

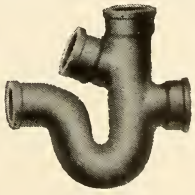


Plate E5374

RUNNING TRAPS WITH Y OR HALF Y BRANCH AND VENT

Size.....inches	4x4	5x4	5x5	6x4	6x5	6x6	8x6
Price, Standard.....each	4.95	8.60	8.60	6.50	9.85	12.30	13.80
" Extra Heavy..... "	6.15	10.75	10.75	8.00	12.30	15.35	17.25

CAST IRON SOIL PIPE FITTINGS

VENT CAP

Plate E5381

VENT CAP WITH SET SCREW

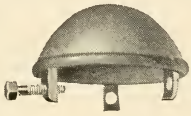


Plate E5382

SINGLE HUB

Plate E5383

DOUBLE HUB

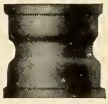


Plate E5384

VENT CAPS

Size.....inches	2	3	4	5	6
Price, Standard.....each	.60	.70	.90	1.85	2.00

VENT CAPS WITH SET SCREW

Will fit either standard or extra heavy soil pipe. Two of the prongs are each provided with a small lug, which can be easily knocked off if cap is to be used with extra heavy pipe.

Size.....inches	2	3	4	5	6
Price.....each	.40	.40	.45	.50	.60

SINGLE AND DOUBLE HUBS

Size.....inches	2	3	4	5	6	8	10	12
Price, Single Hubs, Standard...each	.50	.65	.70	1.25	1.85	2.50	3.90	....
" " " Extra Heavy "	.60	.90	.90	1.55	2.45	3.50	4.85	....
" Double " Standard... "	.40	.50	.60	1.00	1.15	2.50	3.80	5.40
" " " Extra Heavy "	.45	.75	.75	1.25	1.55	3.50	4.85	9.20

SLEEVE

Plate E5385

THIMBLE

Plate E5386

REDUCER

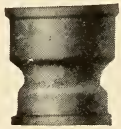


Plate E5387

PLUG

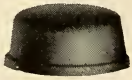


Plate E5388

SLEEVES AND THIMBLES

Size.....inches	2	3	4	5	6	8	10	12
Price, Standard.....each	.60	.75	.75	1.25	1.85	2.50	3.80	5.40
" Extra Heavy..... "	.75	.90	.90	1.55	2.30	3.50	4.85	9.20

REDUCERS

Size.....inches	3x2	4x2	4x3	5x2	5x3	5x4	6x2
Price, Standard.....each	.40	.40	.45	.60	.60	.60	.60
" Extra Heavy..... "	.45	.45	.55	.75	.75	.75	.75
Size.....inches	6x3	6x4	6x5	8x6	10x8	12x10	15x12
Price, Standard.....each	.85	.85	.85	2.50	4.85	6.75	13.30
" Extra Heavy..... "	1.00	1.00	1.00	4.25	6.20	10.80	22.30

PLUGS

Size.....inches	2	3	4	5	6	8	10	12	15
Price, Standard...each	.25	.40	.45	.60	.75	1.20	2.15	3.25	5.60
" Extra Heavy "	.30	.45	.60	.75	.90	1.50	3.25	4.30	7.00

CAST IRON SOIL PIPE FITTINGS

T SADDLE

Plate E5391

T SADDLE HUB

Plate E5392

Y SADDLE HUB

Plate E5393

HALF Y SADDLE HUB

Plate E5394

T SADDLE AND T SADDLE HUBS

Size ..... inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3
Price, Standard ..... each	.75	.80	.80	.80	.90	.90	.90	.95
" Extra Heavy ..... "	.95	1.00	1.00	1.00	1.10	1.10	1.10	1.15
Size ..... inches	5x4	5x5	6x2	6x3	6x4	6x5	6x6	....
Price, Standard ..... each	1.00	1.00	1.00	1.00	1.00	1.05	1.15	....
" Extra Heavy ..... "	1.25	1.25	1.25	1.25	1.25	1.30	1.40	....

Y AND HALF Y SADDLE HUBS

Size ..... inches	2x2	3x2	3x3	4x2	4x3	4x4	5x2	5x3
Price, Standard ..... each	.80	.90	.90	.90	.95	.95	.95	1.00
" Extra Heavy ..... "	1.00	1.10	1.10	1.10	1.15	1.15	1.15	1.25
Size ..... inches	5x4	5x5	6x2	6x3	6x4	6x5	6x6	....
Price, Standard ..... each	1.05	1.05	1.15	1.15	1.15	1.25	1.25	....
" Extra Heavy ..... "	1.30	1.30	1.40	1.40	1.40	1.55	1.55	....

FLOOR PLATE

Plate E5395

PIPE REST

Plate E5396

STRAINER

Plate E5397

PIPE HOOK

Plate E5398

FLOOR PLATES

Size ..... inches	2	3	4	5	6
Price, Standard ..... each	.40	.60	.75	.80	1.00
" Extra Heavy ..... "	.50	.75	.90	1.00	1.25

PIPE RESTS

Size ..... inches	2	3	4	5	6	8	10
Price, Plain, Standard ..... each	.30	.40	.40	.75	.95	1.75	2.15
" " Extra Heavy ..... "	.40	.45	.45	.90	1.15	2.25	3.25

STRAINERS

Size ..... inches	2	3	4	5	6
Price, Standard ..... each	.10	.15	.20	.25	.30

PIPE HOOKS

Size ..... inches	2	3	4	5	6
Price ..... each	.08	.11	.13	.16	.20

CAST IRON SOIL PIPE FITTINGS

SANITARY T CLEANOUT
TRAP SCREW ON MAIN

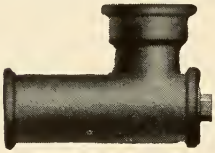


Plate E5401

Y CLEANOUT
TRAP SCREW ON MAIN

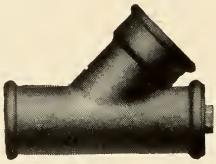


Plate E5402

Y CLEANOUT
TRAP SCREW ON BRANCH

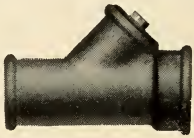


Plate E5403

Size ..... inches	2	3	4	5	6
Price, Sanitary T Cleanouts, Trap Screw on Main, Standard ..... each	1.50	1.95	2.45	4.30	4.90
" " T " " " " " Extra Heavy ..... "	1.85	2.45	3.05	5.40	6.15
" Y Cleanouts, Trap Screw on Main, Standard ..... "	1.40	2.00	2.45	4.30	4.95
" Y " " " " " Extra Heavy ..... "	1.85	2.45	3.05	5.40	6.15
" Y " " " " Branch, Standard ..... "	1.40	2.00	2.45	4.30	4.95
" Y " " " " " Extra Heavy ..... "	1.85	2.45	3.05	5.40	6.15

T CLEANOUT
TRAP SCREW ON BRANCH

Plate E5404

COMBINATION Y AND EIGHTH BEND
TRAP SCREW ON MAIN

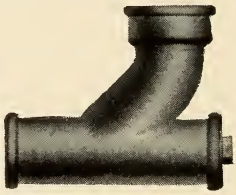


Plate E5405

Size ..... inches	2	3	4	5	6
Price, T Cleanouts, Standard ..... each	1.50	1.70	1.70	3.25	3.70
" T " Extra Heavy ..... "	1.85	2.15	2.15	4.00	4.60
" Combination Y and Eighth Bends, Standard .. "	1.85	2.45	3.10	4.95	6.15
" " Y " " " Extra Heavy .. "	2.30	3.05	3.85	6.15	7.70

PALMER SEWER VALVES

VALVE AND SETTING
WITH HANDHOLE AND COVER

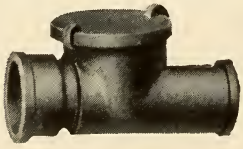


Plate E5406

WITH HUB

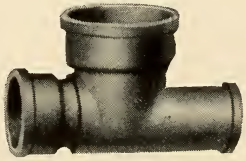


Plate E5407

VALVE
ONLY

Plate E5408

Size ..... inches	2	3	4	5	6	8	9	10	12
Price, Valve and Setting . . . each	6.00	6.50	7.50	9.00	10.00	15.00	....	30.00	50.00
" " only ..... "	1.00	1.20	1.60	2.20	2.40	3.80	6.00	15.00	20.00

CAST IRON SOIL PIPE FITTINGS

SISSON INSERTABLE JOINTS

Plate E5411

TRAP COVER

Plate E5412

SISSON INSERTABLE JOINTS

With this fitting a most satisfactory connection can be made and labor and expense saved when a leak is discovered in a pipe or fitting already connected.

Size ..... inches	2	3	4	5	6
Price, Standard ..... each	1.40	1.50	1.80	2.10	2.60
" Extra Heavy ..... "	1.50	1.70	2.00	2.30	2.80

TRAP COVERS

Size ..... inches	2	3	4	5	6	8	10
Price, Standard ..... each	.25	.30	.40	.45	.55	.90	1.30
" Extra Heavy ..... "	.30	.35	.50	.55	.65	1.05	1.60

CONNOLLY SADDLE HUBS

FOR STANDARD OR EXTRA HEAVY PIPE

T SADDLE HUB

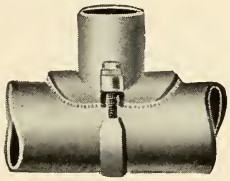


Plate E5413

Y SADDLE HUB

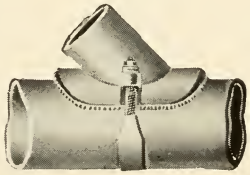


Plate E5414

Size ..... inches	2x2	3x2	3x3	4x2	4x3
Price, T Hubs, Standard ..... each	.75	.80	.80	.80	.90
" T " Extra Heavy ..... "	.95	1.00	1.00	1.00	1.10
" Y " Standard ..... "	.80	.90	.90	.90	.95
" Y " Extra Heavy ..... "	1.00	1.10	1.10	1.10	1.15

Size ..... inches	4x4	5x2	5x3	5x4	5x5
Price, T Hubs, Standard ..... each	.90	.90	.95	1.00	1.00
" T " Extra Heavy ..... "	1.10	1.10	1.15	1.25	1.25
" Y " Standard ..... "	.95	.95	1.00	1.05	1.05
" Y " Extra Heavy ..... "	1.15	1.15	1.25	1.30	1.30

Size ..... inches	6x2	6x3	6x4	6x5	6x6
Price, T Hubs, Standard ..... each	1.00	1.00	1.00	1.05	1.15
" T " Extra Heavy ..... "	1.25	1.25	1.25	1.30	1.40
" Y " Standard ..... "	1.15	1.15	1.15	1.25	1.25
" Y " Extra Heavy ..... "	1.40	1.40	1.40	1.55	1.55

CAST IRON SOIL PIPE FITTINGS

STYLE 1 BLAKE "Y" FITTINGS STYLE 2

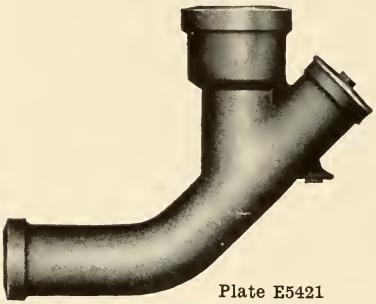


Plate E5421

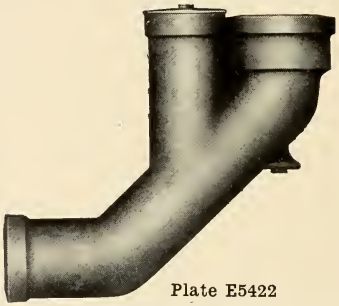


Plate E5422

Size ..... inches	2	4
Price, Style 1 or Style 2, Standard ..... each	1.00	2.10
" " 1 " " 2, Extra Heavy ..... "	1.40	2.50

STYLE 3

This fitting is Style 2 with hub branch inlet. Can be furnished with right or left or right and left inlets in Style 1 or Style 2.

	Std.	Ex.Hvy.
Price, 4-inch, with 2-inch Hub Inlet, Right or Left, either Style ..... each	2.60	3.00
" 4-inch, with 2-inch Hub Inlets, Right and Left, either Style ..... "	3.10	3.50

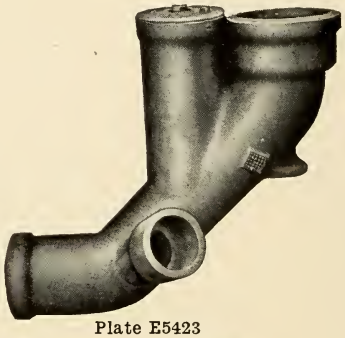


Plate E5423

BLAKE CLOSET BENDS

PLAIN

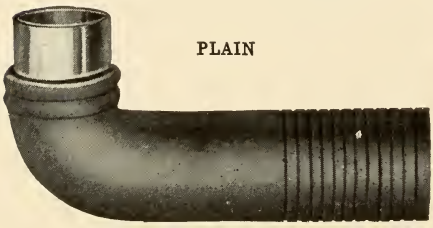


Plate E5424

WITH SIDE TAPPINGS

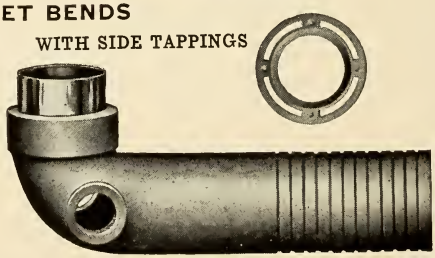


Plate E5425

For extra heavy or standard hubs. The connection is made of annealed seamless brass tube rolled into grooves in the bend and can be used the same as extra heavy lead. The flange is adjustable and allows variation.

Price, 4x18 inches, Plain, with Floor Flange ..... each	3.25
" 4x18 " " without Floor Flange ..... "	2.75
" 4x18 " Tapped 1½-inch, Right or Left, with Floor Flange ..... "	3.45
" 4x18 " " 1½ " " " " without Floor Flange .... "	2.95
" 4x18 " " 1½ " " and " with " " .... "	3.65
" 4x18 " " 1½ " " " " without " " .... "	3.15

CAST IRON CLOSET BENDS

ADJUSTABLE SCREW, FLANGED INLET

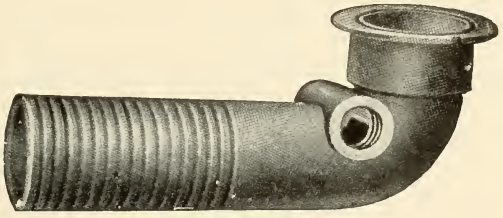


Plate E5431

These bends are made standard and extra heavy. Standard weight will be furnished unless otherwise specified.

Corrugated end, 16 inches center to end; openings on side tapped for 1½ and 2-inch iron pipe.

Please order by number.

No. 20

Plate E5432

Nos. 21 AND 26

Plate E5433

Nos. 22 AND 27

Plate E5434

Nos. 23 AND 28

Plate E5435

Nos. 24 AND 29

Plate E5436

Nos. 25 AND 30

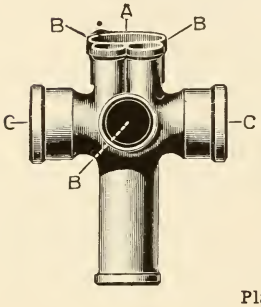
Plate E5437

No.	Description	Price, Each	
		Standard	Extra Heavy
20	No Openings on Either Side	3.25	3.85
21	One 1½-inch I. P. Opening on Each Side	3.75	4.45
22	" 1½ " " " " " "	3.75	4.45
23	Two 1½ " " Openings " Left "	3.75	4.45
24	" 1½ " " " " Right "	3.75	4.45
25	" 1½ " " " " Each "	4.30	5.15
26	One 2 " " Opening " " "	4.00	4.80
27	" 2 " " " " " "	4.00	4.80
28	Two 2 " " Openings " Left "	4.00	4.80
29	" 2 " " " " Right "	4.00	4.80
30	" 2 " " " " Each "	4.50	5.35

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 720 SANITARY CROSS
Double Vent, Closet and Center Bath Inlets



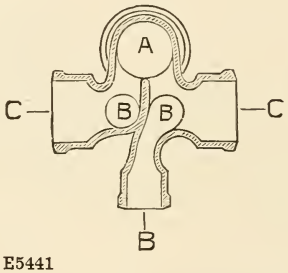


Plate E5441

No. 725 SANITARY CROSS
Boston Pattern, Single Vent

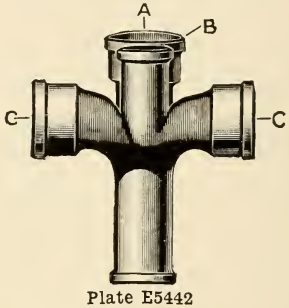


Plate E5442

No. 720

No. 725, BOSTON PATTERN

Size, Inches A B C	Price Each	Size, Inches A B C	Price Each	Size, Inches A B C	Price Each
4 x 2 x 4	8.50	2 x 1½ x 1½ Tapped	5.00	3 x 2 x 1½ Tapped	6.00
5 x 2 x 4	9.50	2 x 2 x 1½ "	5.00	3 x 2 x 2 "	6.00
6 x 2 x 4	10.50	2 x 1½ x 2 "	5.00	4 x 2 x 4 Hub	9.00
.....	....	2 x 2 x 2 "	5.00	4 x 3 x 4 "	9.50

No. 726 SANITARY CROSS—Double Vent for Double Closet Range

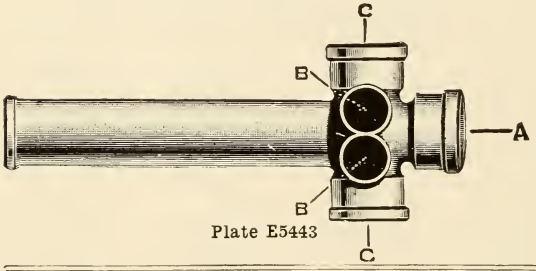
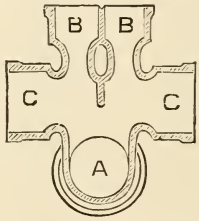


Plate E5443



Size, Inches A B C	Price, Each
4 x 27 Long—2 x 4	10.00
5 x 27 " —2 x 4	11.00
6 x 27 " —2 x 4	12.00

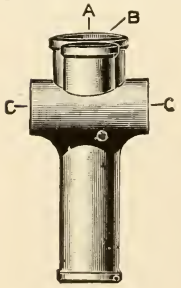


Plate E5444

No. 730 CROSS

Single Vent with Double Sink or Basin Inlets

Size, Inches A B C Tapped	Price Each	Size, Inches A B C Tapped	Price Each
2 x 1½ x 1½ "	2.75	3 x 2 x 1½ "	3.25
2 x 1½ x 2 "	2.75	3 x 2 x 2 "	3.25
2 x 2 x 1½ "	2.75	3 x 3 x 1½ "	3.50
2 x 2 x 2 "	2.75	3 x 3 x 2 "	3.50
3 x 1½ x 1½ "	3.25	3 x 4 x 1½ "	3.75
3 x 1½ x 2 "	3.25	3 x 4 x 2 "	3.75

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 740 SANITARY TEE
Closet and L. H. Side Bath Inlets

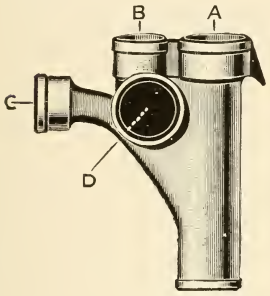


Plate E5451

No. 770 SANITARY TEE
L. H. Side Hub Inlet

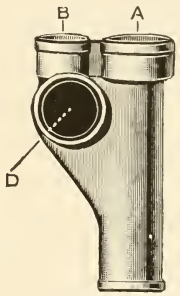


Plate E5452

L. H. Side Tapped Inlet

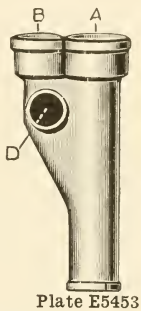


Plate E5453

No. 740 SANITARY TEES, RIGHT OR LEFT

Size, Inches A x B C x D	Price, Each	Size, Inches A x B C x D	Price, Each
4 x 2—2 x 4	4.75	5 x 3—2 x 4	5.75
4 x 3—2 x 4	5.00	5 x 4—2 x 4	6.00
5 x 2—2 x 4	5.50	.....	....

No. 770 SANITARY TEES, RIGHT OR LEFT

Size, Inches A x B x D	Price, Each	Size, Inches A x B x D	Price, Each
2 x 1½ x 1½ Tapped	2.25	3 x 4 x 1½ Tapped	3.25
2 x 1½ x 2 "	2.25	3 x 4 x 2 "	3.25
2 x 2 x 1½ "	2.25	4 x 2 x 1½ "	3.50
2 x 2 x 2 "	2.25	4 x 2 x 2 "	3.50
3 x 1½ x 1½ "	2.75	4 x 2 x 4 Hub	3.50
3 x 1½ x 2 "	2.75	4 x 3 x 4 "	3.75
3 x 2 x 1½ "	2.75	5 x 2 x 1½ Tapped	4.00
3 x 2 x 2 "	2.75	5 x 2 x 2 "	4.00
3 x 2 x 3 Hub	3.00	5 x 2 x 4 Hub	4.50
3 x 3 x 1½ Tapped	3.00	5 x 3 x 4 "	5.00
3 x 3 x 2 "	3.00	5 x 4 x 4 "	5.50

No. 785 CLOSET RANGE TEES

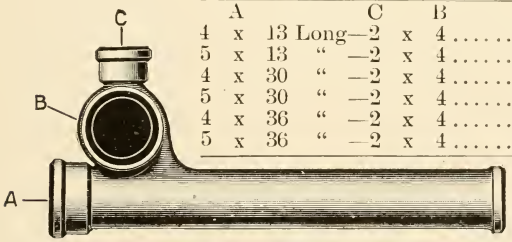


Plate E5454

Size, Inches A x C x B	Price, Each
4 x 13 Long—2 x 4	3.50
5 x 13 " —2 x 4	4.50
4 x 30 " —2 x 4	5.50
5 x 30 " —2 x 4	6.00
4 x 36 " —2 x 4	6.00
5 x 36 " —2 x 4	6.50

Illustration shows left-hand side; made right or left.

No. 800 JUMP-OVER

Price, 2-inch x 5-foot .....each	3.75
" 3 " x 5 " ..... "	5.75
" 4 " x 5 " ..... "	7.75

Plate E5455

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 700 SANITARY CROSS
Double Vent

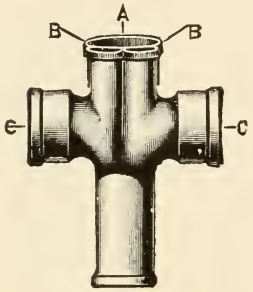


Plate E5461

No. 701 SANITARY CROSS
Double Vent, Closet and Back Inlets

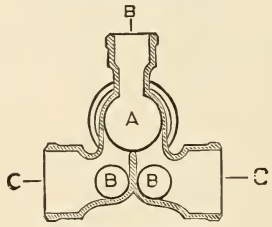


Plate E5462

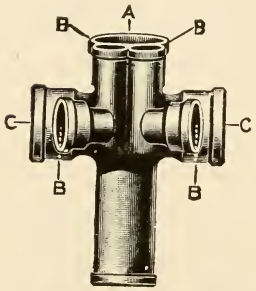
No. 700 SANITARY CROSSES—Double Vent

Size, Inches A	B	C	Price, Each	Size, Inches A	B	C	Price, Each
2 x	1½ x	1½ Tapped	3.75	4 x	2 x	4 Hub	8.00
2 x	1½ x	2 "	3.75	5 x	2 x	4 "	9.00
3 x	1½ x	1½ "	4.50	6 x	2 x	4 "	10.00
3 x	1½ x	2 "	4.50	.....			.....

No. 701 SANITARY CROSSES—Double Vent, Closet and Back Inlets

Size, Inches A	B	C	Price, Each
4 x	2 x	4	8.50
5 x	2 x	4	9.50
6 x	2 x	4	10.50

No. 705 SANITARY CROSS
Double Vent, Closet and Bath Inlets



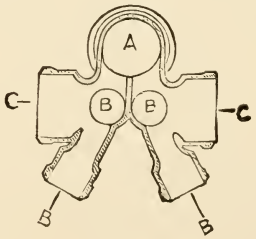


Plate E5463

No. 706 SANITARY CROSS
Double Vent, Closet,
Bath and Back Inlets

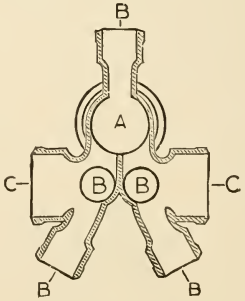


Plate E5464

No. 705 SANITARY CROSSES

Size, Inches A	B	C	Price, Each
4 x	2 x	4	9.00
5 x	2 x	4	10.00
6 x	2 x	4	11.00

No. 706 SANITARY CROSSES

Size, Inches A	B	C	Price, Each
4 x	2 x	4	9.50
5 x	2 x	4	10.50
6 x	2 x	4	11.50

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 710 SANITARY CROSS
Double Vent, Closet and R. H. Bath Inlets

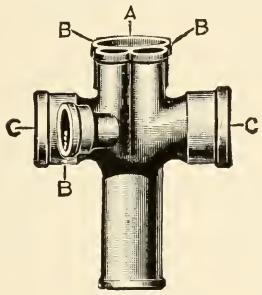


Plate E5471

No. 715 SANITARY CROSS
Double Vent, Closet and L. H. Bath Inlets

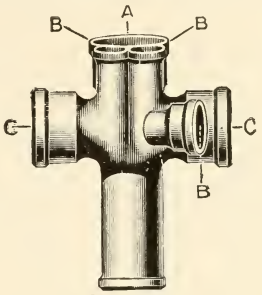


Plate E5472

NOS. 710 AND 715

Size, Inches	Price, Each
A B C	
4 x 2 x 4	8.50
5 x 2 x 4	9.50
6 x 2 x 4	10.50

No. 711 SANITARY CROSS
Double Vent, Closet, R. H. Bath and Back Inlets

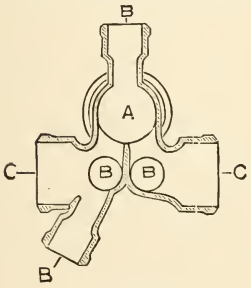


Plate E5473

No. 716 SANITARY CROSS
Double Vent, Closet, L. H. Bath and Back Inlets

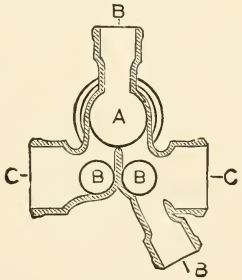


Plate E5474

No. 721 SANITARY CROSS
Double Vent, Closet, Center Bath and Back Inlets

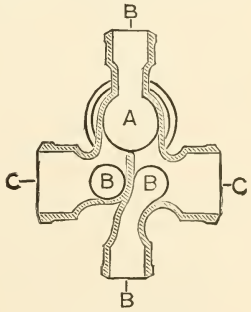


Plate E5475

NOS. 711 AND 716

Size, Inches	Price, Each
A B C	
4 x 2 x 4	9.00
5 x 2 x 4	10.00
6 x 2 x 4	11.00

NO. 721

Size, Inches	Price, Each
A B C	
4 x 2 x 4	9.00
5 x 2 x 4	10.00
6 x 2 x 4	11.00

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 890 REVENT "E"
Long Pattern

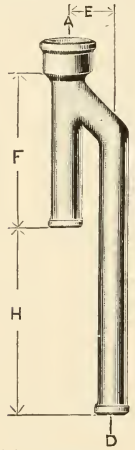


Plate E5481

No. 892 REVENT "E"
With Reverse Long Leg

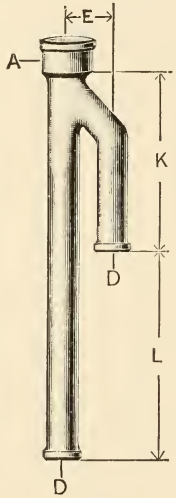


Plate E5482

No. 895 REVENT "F"

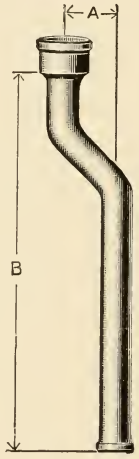


Plate E5483

No. 890

Size, Inches A x D	Dimensions, Inches E	F	H	Price, Each
2 x 2	3 7/8	12 3/4	15 1/8	2.75
3 x 2	4 1/4	12 1/4	15	3.00
4 x 2	4 7/8	12	15 1/4	3.25

No. 892

Size, Inches A x D	Dimensions, Inches E	K	L	Price, Each
2 x 2	3 7/8	12 3/8	15 1/8	2.75

No. 895

Size, Inches	Dimensions, Inches A	B	Price, Each
2	3 7/8	24 1/4	1.75
3	3 7/8	24 1/4	2.50
4	3 7/8	24 1/8	3.25

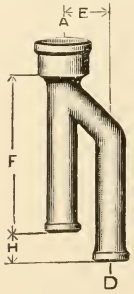


Plate E5484

No. 885 REVENT "E"

SHORT PATTERN

Size, Inches A x D	Dimensions, Inches E	F	H	Price, Each
2 x 2	3 7/8	12 1/4	2 1/2	2.25
3 x 2	4 1/4	12 1/4	2 1/2	2.50
4 x 2	4 7/8	12	2 3/4	2.75

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 905 REVENT "G" Short Pattern

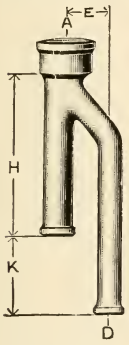


Plate E5491

No. 906 REVENT "G" Hub, Short Pattern

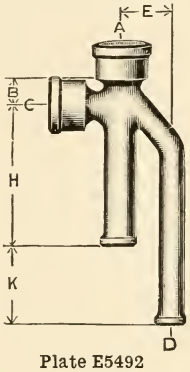


Plate E5492

No. 907 REVENT "G" Tapped, Short Pattern

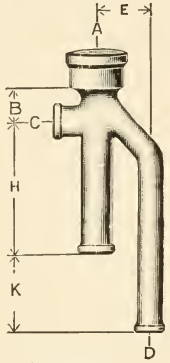


Plate E5493

No. 910 REVENT "G" Long Pattern

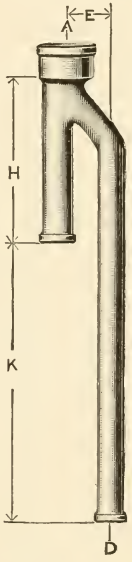


Plate E5494

No. 905

Size, Inches	Dimensions, Inches			Price, Each
A D	E	H	K	
2 x 1½	3½	12¼	6	2.25
3 x 1½	4	12¼	5⅞	2.50
4 x 1½	4½	11¾	6¾	2.75

No. 906

Size, Inches	Dimensions, Inches				Price, Each
A C D	B	E	H	K	
2 x 2—1½	2¼	3½	10	6	2.25
3 x 2—1½	2¼	4	10	6	2.75
4 x 2—1½	2¼	4½	10	6	3.25

No. 907

Size, Inches	Dimensions, Inches				Price, Each
A C D	B	E	H	K	
2 x 1½—1½	2¼	3½	10	6	2.25
2 x 2 —1½	2¼	3½	10	6	2.25
3 x 1½—1½	2¼	4	10	6	2.75
3 x 2 —1½	2¼	4	10	6	2.75
4 x 1½—1½	2¼	4½	10	6	3.25
4 x 2 —1½	2¼	4½	10	6	3.25

No. 910

Size, Inches	Dimensions, Inches			Price, Each
A D	E	H	K	
2 x 1½	3½	12⅜	19⅝	3.00
3 x 1½	4	12¼	19¾	3.25
4 x 1½	4½	11⅞	20⅛	3.50

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 830
REVENT "A"
Long Pattern

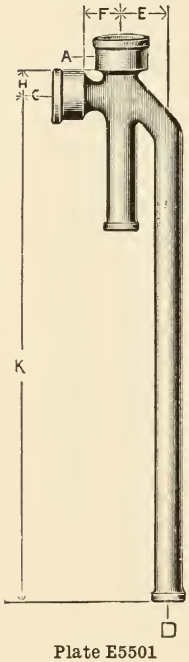


Plate E5501

No. 830 REVENT "A"

Size, Inches			Dimensions, Inches				Price Each
A		CD	E	F	H	K	
2	x	2	4	2½	2¼	37¾	3.25
3	x	2	4½	3	2¼	37¾	4.00
4	x	2	5	3½	2¼	37¾	4.75

No. 840 REVENT "B"

Size, Inches				Dimensions, Inches				Price Each
A		*C	D	E	F	H	K	
2	x	1½	— 2	4	3½	2¼	37¾	3.25
2	x	2	— 2	4	3½	2¼	37¾	3.25
3	x	1½	— 2	4½	4	2¼	37¾	4.00
3	x	2	— 2	4½	4	2¼	37¾	4.00
4	x	1½	— 2	5	4½	2¼	37¾	4.75
4	x	2	— 2	5	4½	2¼	37¾	4.75

*C, tapped inlet.

No. 840
REVENT "B"
Long Pattern

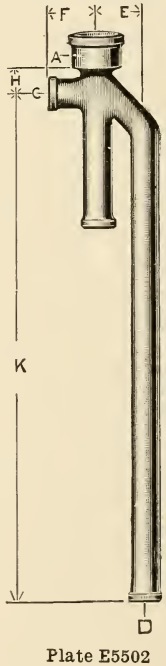


Plate E5502

No. 825 REVENT "A"

Size, Inches			Dimensions, Inches					Price Each
A		CD	E	F	H	K	L	
2	x	2	3⅞	2⅜	2¼	10	2½	2.25
3	x	2	4⅜	2⅞	2¼	10	2½	2.75
4	x	2	5	3½	2¼	10	2½	3.25

No. 825
REVENT "A"
Short Pattern

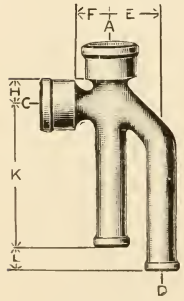


Plate E5503

No. 835 REVENT "B"

Size, Inches				Dimensions, Inches					Price Each
A		*C	D	E	F	H	K	L	
2	x	1½	— 2	3⅞	3½	2¼	10	2½	2.25
2	x	2	— 2	3⅞	3½	2¼	10	2½	2.25
3	x	1½	— 2	4⅜	4	2¼	10	2½	2.75
3	x	2	— 2	4⅜	4	2¼	10	2½	2.75
4	x	1½	— 2	4⅞	4½	2¼	10	2½	3.25
4	x	2	— 2	4⅞	4½	2¼	10	2½	3.25

*C, tapped inlet.

No. 835
REVENT "B"
Short Pattern

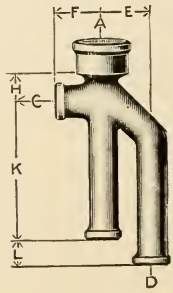


Plate E5504

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 850 REVENT "ANGLE B" Long Pattern

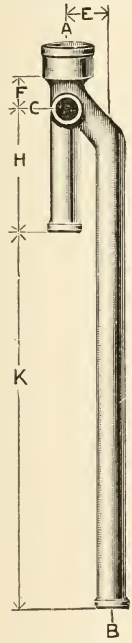


Plate E5511

Illustration of No. 850 shows right-hand side inlet tapped. In ordering, specify if right or left-hand inlet is wanted.

No. 850

Size, Inches				Dimensions, Inches				Price Each
A		C	B	E	F	H	K	
2	x	1½	—2	4	2¼	10	27¾	3.25
2	x	2	—2	4	2¼	10	27¾	3.25
3	x	1½	—2	4½	2¼	10	27¾	4.00
3	x	2	—2	4½	2¼	10	27¾	4.00
4	x	1½	—2	5	2¼	10	27¾	4.75
4	x	2	—2	5	2¼	10	27¾	4.75

No. 860

Size, Inches			Dimensions, Inches				Price Each
AB		C	D	E	F	H	
2	x	2	2½	3¾	2¼	37¾	3.25
3	x	2	3	3¾	2¼	37¾	4.00
4	x	2	3½	3¾	2¼	37¾	4.75

No. 860 REVENT "C" Long Pattern

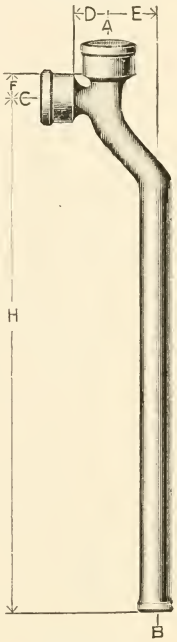


Plate E5512

No. 845

Illustration shows right-hand side inlet tapped. In ordering, specify if right or left-hand is wanted.

No. 845 REVENT "ANGLE B" Short Pattern

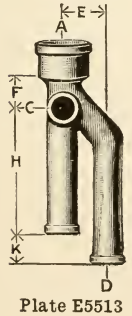


Plate E5513

Size, Inches				Dimensions, Inches				Price Each
A		C	D	E	F	H	K	
2	x	1½	—2	3⅞	2¼	10	2½	2.25
2	x	2	—2	3⅞	2¼	10	2½	2.25
3	x	1½	—2	4⅜	2¼	10	2½	2.75
3	x	2	—2	4⅜	2¼	10	2½	2.75
4	x	1½	—2	4⅞	2¼	10	2½	3.25
4	x	2	—2	4⅞	2¼	10	2½	3.25

No. 855

Size, Inches			Dimensions, Inches				Price Each
AB		C	D	E	F	H	
2	x	2	2½	3¾	2¼	12½	2.25

No. 855 REVENT "C" Short Pattern

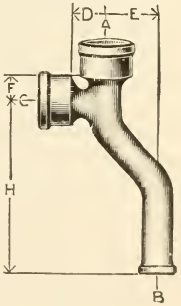


Plate E5514

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

No. 915 REVENT "H"

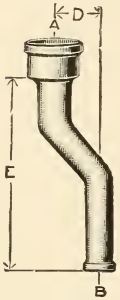


Plate E5521

No. 916 REVENT "H" (HUB)

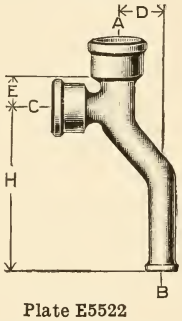


Plate E5522

No. 917 REVENT "H" (TAPPED)

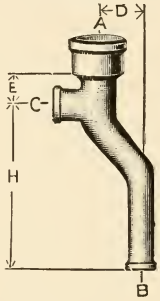


Plate E5523

No. 920 REVENT "I"

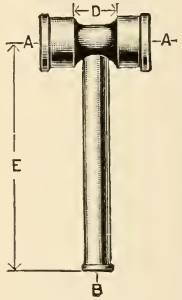


Plate E5524

No. 915

Size, Inches	Dimensions, Inches	Price Each
A B	D E	
2 x 1½	3¾ 13⅜	1.50

No. 916

Size, Inches	Dimensions, Inches	Price Each
A C B	E D H	
2 x 2—1½	2⅜ 3¾ 11	2.00

No. 917

A C B	D E H	
2 x 1½—1½	3¾ 2⅜ 11	2.00
2 x 2 —1½	3¾ 2⅜ 11	2.00
.....	... .	....

No. 920

A B	D E	
2 x 1½ x 16 Long	3¼ 16	1.50
2 x 2 x 16 "	4 16	1.75
2 x 2 x 30 "	4 30	2.25

No. 925 REVENT "J"

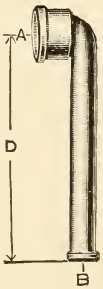


Plate E5525

No. 925

Size, Inches	Price, Each
A B	
2 x 1½ x 16 inches Long	1.50
2 x 1½ x 22 " "	1.75

No. 930—B, TAPPED INLET

Size, Inches	Dimensions, Inches			Price, Each
A B	D	E	F	
2 x 1½	3⅜	3⅜	15¾	2.50

No. 930 REVENT "K"

Plate E5526

No. 935 REVENT "L"

Plate E5527

No. 940 REVENT "M"

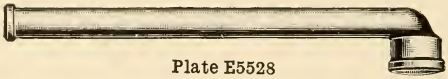


Plate E5528

No. 935

Size, Inches	Price, Each
A B	
1½ x 1½	.75
2 x 2	1.00

No. 940

Price, 2 x 2 inches, 30 inches Long .....each	2.25

F. & W. FITTINGS

COMBINATION VENT, REVENT AND DRAINAGE

REVENT "N"
Nos. 944, 945, 946

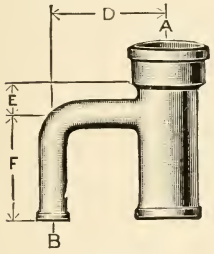


Plate E5531

No. 950 REVENT "U"

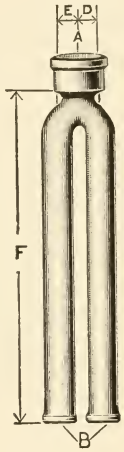


Plate E5533

No. 900 EXTENSION PIECE

Plate E5532

REVENTS "N"

Number	Size, Inches A	Size, Inches B	Dimensions, Inches D	Dimensions, Inches E	Dimensions, Inches F	Price, Each
944	4	2	9 3/8	2	6 1/2	2.00
944	4	3	9 7/8	2 3/8	6 3/4	2.25
945	2	2	7	2	7 3/8	1.50
945	3	2	7 7/8	2 1/8	7 1/4	1.75
945	4	2	8 3/8	2	7	2.00
945	4	3	8 7/8	2 1/2	6 3/8	2.25
945	5	2	9	2 3/4	6 1/2	2.25
945	5	3	9 3/8	2 3/4	6 1/2	2.50
945	5	4	9 7/8	3	6 1/4	2.75
946	2	2	10 3/4	2	7	1.75
946	3	2	11 1/4	2	7	2.00
946	4	2	11 1/2	2	7 1/4	2.25
946	4	3	12	3	7 3/4	2.50
946	5	3	12 3/4	2 3/4	7 3/4	2.75
946	5	4	13 1/4	3 1/4	8 1/4	3.00

No. 950 REVENTS "U"

Size, Inches A	Size, Inches B	Dimensions, Inches E	Dimensions, Inches D	Dimensions, Inches F	Price, Each
1 1/2	1 1/2	1 5/16	1 5/16	18 1/2	2.00
2	2	1 5/8	1 5/8	26 1/8	3.00

1½-inch for 2 and 3-inch double vent crosses, 2-inch for 4 and 5-inch double vent crosses.

No. 900 EXTENSION PIECES

Price, 1½x 7 inches .....each	1.00	Price, 3x27⅝ inches .....each	2.50
" 1½x24 " ..... "	1.25	" 4x28⅛ " ..... "	3.50
" 2 x27⅝ " ..... "	1.75	.....	....

GALVANIZED IRON SPIRAL PIPE, ETC.

GALVANIZED IRON SPIRAL PIPE

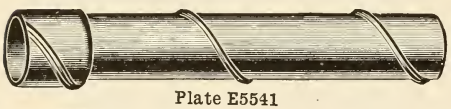


Plate E5541

GALVANIZED IRON ADJUSTABLE ELBOWS

Plate E5542

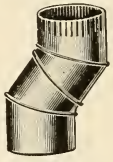


Plate E5543

Plate E5544

Size ..... inches	1½	2	2½	3	4	5	6
Price, Spiral Pipe, No. 29G .... per foot	.12	.14	.17	.19	.25	.30	.38
" Adjustable Elbows ..... each	.20	.20	.30	.30	.40	.55	.70

"GLOBE" VENTILATOR

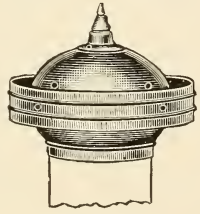


Plate E5545

CONDUCTOR STRAINER

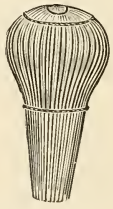


Plate E5546

"GLOBE" VENTILATORS

Size ..... inches	2	2½	3	4	5	6	7	8	10	12	14	16	18	20	24
Price ..... each	1.00	1.00	1.50	1.75	2.50	3.40	4.00	4.65	5.75	6.75	13.00	20.00	27.00	33.00	40.00

CONDUCTOR STRAINERS

Size ..... inches	2	3	4	5	6
Price, Galvanized ..... per dozen	1.50	2.00	3.00	5.00	6.00
" Copper ..... "	3.75	5.00	8.25	15.00	18.00

ADJUSTABLE ROOF FLASHES

APPLIED ON PITCHED ROOF

APPLIED ON FLAT ROOF

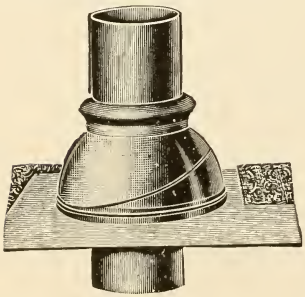


Plate E5547

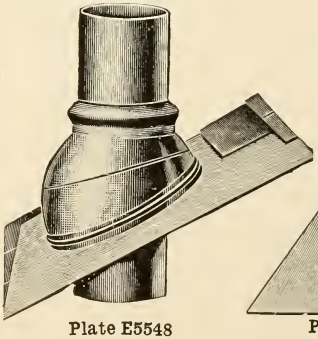


Plate E5548

LEAD ROOF FLASH

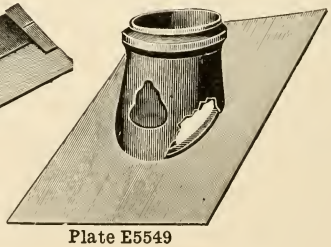


Plate E5549

Size ..... inches	1	1¼	1½	2	3	4	5	6
Price, Galvanized Steel .... per dozen	.....	8.00	8.00	10.00	11.00	12.00	17.00	30.00
" Copper ..... "	.....	15.00	15.00	17.00	19.00	20.00	27.00	40.00
" Lead ..... each	1.20	1.25	1.30	1.50	1.70	1.90	2.50	4.30

CELLAR DRAINERS AND TEST PLUGS

CELLAR DRAINERS

CLIMAX, WITHOUT AUTOMATIC MOVEMENT

Plate E5551

CLIMAX, WITH AUTOMATIC MOVEMENT

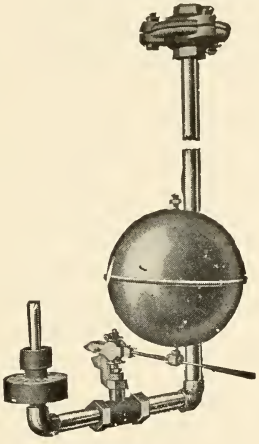


Plate E5552

PENBERTHY AUTOMATIC

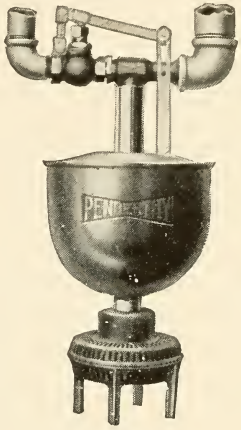


Plate E5553

CLIMAX

Number	1	2	3	4	5	6
Supply Pipe....inches	½	¾	1	1¼	1½	2
Discharge Pipe .... "	1	1¼	1½	2	2½	3
Capacity per Hour....gallons	50 to 250	100 to 400	150 to 600	200 to 800	275 to 1000	350 to 1200
Lift....feet	6 to 12	6 to 12	6 to 12	6 to 12	6 to 12	6 to 12
Pressure....pounds	15 " 80	15 " 80	15 " 80	15 " 80	15 " 80	15 " 80
Price, without Automatic Movement....each	15.00	25.00	35.00	50.00	70.00	100.00
Price, with Automatic Movement.. "	25.00	40.00	55.00	80.00	110.00	160.00

PENBERTHY

Number	1	2	3	4	5	6	7	8
Supply Pipe....inches	½	¾	1	1¼	1½	2	2½	3
Discharge Pipe .... "	1	1¼	1½	2	2½	3	3½	4
Extreme Width.... "	9½	11¼	15⅛	18½	20 9/16	....	....	....
Capacity, per Hour....gallons	115 to 650	180 to 1050	310 to 1650	450 to 2400	600 to 3200	780 to 4200	1000to 5300	1250to 6500
Price....each	25.00	40.00	55.00	80.00	110.00	160.00	225.00	300.00

SOIL PIPE TEST PLUGS

CLIMAX

Plate E5554

CLIMAX DOUBLE

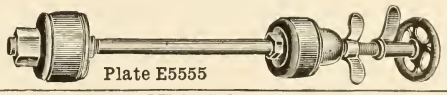


Plate E5555

Size....inches	2	3	4	5	6	7	8	10
Price, Climax....each	1.00	1.25	1.50	2.00	2.50	3.50	4.50	8.00
" " Double.... "	2.50	3.50	4.50	6.00	7.50	9.00	11.00	14.00
" Extra Rubbers for Single Plugs. "	.25	.50	.70	.90	1.20	2.00	3.25	5.90

SEWER PIPE AND FITTINGS

Western List, Adopted July 1, 1916

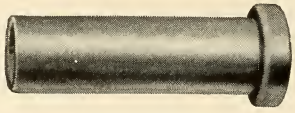


Plate E5561

SEWER PIPE

Size ..... inches	3	4	5	6	8	9	10	12	15
Weight, per foot ..... pounds	7	9	12	15	23	28	35	43	60
Price ..... per foot	.12	.12	.18	.18	.25	.30	.35	.45	.65

Size ..... inches	18	20	21	22	24	27	30	33	36
Weight, per foot ..... pounds	85	100	120	130	140	224	252	310	350
Price ..... per foot	.85	1.00	1.15	1.30	1.50	2.25	2.75	3.50	4.00

SEWER PIPE, DOUBLE STRENGTH

Size ..... inches	12	14	15	16	18	20	21	22	24	27	30	33	36	39	42
Wt., per ft... lbs.	....	....	75	....	118	138	148	157	190	265	290	335	375	....	....
Price ..... per ft.	.50	.65	.75	.85	1.05	1.25	1.40	1.60	1.80	2.50	3.00	4.00	4.50	5.00	6.00

ELBOW

Plate E5562

1-FOOT CURVE

Plate E5563

2-FOOT CURVE

Plate E5564

Size ..... inches	3 or 4	5 or 6	7 or 8	9	10	12	14	15	16	18	20	21	22	24
Price, Elbows .... each	.48	.72	1.00	1.20	1.40	1.80	4.80	5.20	6.00	6.80	8.00	9.20	10.40	12.00
" Dbl. Strgth. "	....	....	....	....	....	2.00	5.20	6.00	6.80	8.40	10.00	11.20	12.80	14.40
" Curves .... "	.48	.72	1.00	1.20	1.40	1.80	2.40	2.60	3.00	3.40	4.00	4.60	5.20	6.00
" Dbl. Strgth. "	....	....	....	....	....	2.00	2.60	3.00	3.40	4.20	5.00	5.60	6.40	7.20

Y BRANCH

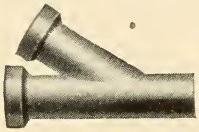


Plate E5565

T BRANCH

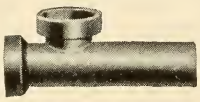


Plate E5566

INCREASER

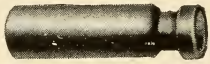


Plate E5567

REDUCER

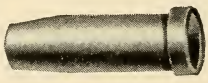


Plate E5568

Y OR T BRANCHES

Size ..... inches	3 or 4	5 or 6	7	8	9	10	12	14	15	16	18	20	21	22	24
Price, 2 feet ..... ea.	.48	.72	1.00	1.00	1.20	1.40	1.80	2.40	2.60	3.00	3.40	4.00	4.60	5.20	6.00
" $2\frac{1}{2}$ " ..... "	....	....	....	1.13	1.35	1.58	2.03	2.70	2.93	3.38	3.83	4.50	5.18	5.85	6.75
" $2\frac{1}{2}$ " Dbl.Str. "	....	....	....	....	....	....	2.25	2.93	3.38	3.83	4.73	5.63	6.30	7.20	8.10

INCREASERS OR REDUCERS

Size. inches	3	4	5	6	7	8	9	10	12	14	15	16	18	20	21	22	24
Price.. each	.48	.48	.72	.72	1.00	1.00	1.20	1.40	1.80	2.40	2.60	3.00	3.40	4.00	4.60	5.20	6.00

Branches with openings of 14-inch and larger, 50 per cent extra.
Increasers have socket on small end, decreasers on large end.

SEWER PIPE FITTINGS

Western List, Adopted July 1, 1916

V BRANCH

Plate E5571

DOUBLE Y BRANCH

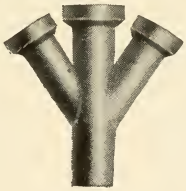


Plate E5572

DOUBLE T BRANCH

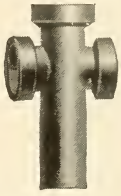


Plate E5573

V, DOUBLE Y OR T BRANCHES, 2 FEET

Size .....inches	3	4	5	6	7	8	9	10	12
Price .....each	.72	.72	1.08	1.08	1.50	1.50	1.80	2.10	2.70
Size .....inches	14	15	16	18	20	21	22	24	....
Price .....each	3.60	3.90	4.50	5.10	6.00	6.90	7.80	9.00	....

V, DOUBLE Y OR T BRANCHES, 2½ FEET

Size . .....inches	8	9	10	12	14	15
Price. .....each	1.63	1.95	2.28	2.93	3.99	4.23
" Double Strength..... "	....	....	....	3.25	4.23	4.88
Size ....inches	16	18	20	21	22	24
Price.....each	4.88	5.53	6.50	7.48	8.45	9.75
" Double Strength..... "	5.53	6.83	8.13	9.10	10.40	11.70

S TRAP

Plate E5574

P TRAP

Plate E5575

RUNNING TRAP

Plate E5576

RUNNING TRAP WITH H.H.

Plate E5577

TRAPS

Size ..inches	3	4	5	6	7	8	9	10	12
Price ..each	1.20	1.20	1.80	1.80	3.00	3.00	3.60	4.20	5.40

SLANTS

Plate E5578

Size .inches	3	4	5	6	7	8	9	10	12
Price .each	.48	.48	.72	.72	1.00	1.00	1.20	1.40	1.80
Size .inches	14	15	16	18	20	21	22	24	....
Price .each	2.40	2.60	3.00	3.40	4.00	4.60	5.20	6.00	....

Branches with openings of 14-inch and larger, 50 per cent additional.

Gutter, split or channel pipe, 75 per cent of one-foot sewer pipe.

Stoppers, 50 per cent of one-foot sewer pipe.

SERVICE BOXES

2½-INCH BOX

Plate E5581

3-INCH BOX

Plate E5582

EXTENSION SECTION

Plate E5583

COVERS, KEYS AND BOLTS

Plate E5584

Plate E5585

ENLARGED BASE

Plate E5586

SERVICE BOXES, 2½-INCH DIAMETER

For Service Cocks 1¼-inch and Smaller

Number	88	89A	90B	91C	92C	92D	93D	93E	94D
Extension ...inches	12	12–20	18–26	21–33	24–38	24–42	36–48	36–54	42–57
Price.....each	.75	.80	.85	.90	.95	1.00	1.05	1.10	1.15
Number	94E	95E	95G	100E	100F	100G	100FX	100FM	....
Extension ...inches	42–60	48–66	48–84	54–72	54–78	54–90	78–102	87–111	....
Price.....each	1.20	1.30	1.60	1.40	1.50	1.70	2.10	2.15	....

With stop cock holder, add to list, 30 cents.

STANDARD SERVICE BOXES, 3-INCH DIAMETER

Number	0	1	1½	2	3	4	5	7
Extension .....inches	10	13–21	18–28	24–39	32–48	34–58	42–66	48–72
Price.....each	.90	1.10	1.15	1.20	1.30	1.45	1.55	1.75

With stop cock holder, add to list, 30 cents.

EXTENSION SECTIONS

Number	151	152	153	154	155	156	157
Increasing Length of Box .....inches	9½	16½	28	33	20	24	30
Price, 2½-inch Diameter.....each	.45	.50	.60	.65	...	...	...
" 3 " " ..... "	...	...	...	...	.55	.60	.65

ENLARGED BASE FOR 3-INCH BOXES

To Use with 1½ or 2-inch Inverted Key Cocks

Price, Extra to be added to Net Cost of 3-inch Boxes.....each 1.00

COVERS, KEYS AND BOLTS

Price, Covers, Lettered "Gas," "Water," Etc.	each	.20
" Keys	"	.10
" Bolts	"	.15

In ordering above boxes be sure to state whether covers are wanted for water, gas or natural gas.

ROADWAY BOXES

ROUND HEAD
OPEN BASE

Plate E5591

ROUND HEAD
FLANGED BASE

Plate E5592

SQUARE HEAD
OPEN BASE

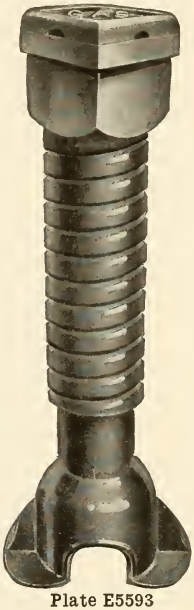


Plate E5593

PLUG
COVER

Plate E5594

LOCK COVER

Plate E5595

ROUND HEAD, 4¼-INCH SHAFT, OPEN BASE

Number	141Q	142Q	142R	143R	144R	145R
Extension, inches	18–24	27–34	27–42	34–48	39–54	46–60
Price, each	**2.35**	**2.50**	**2.70**	**2.80**	**2.90**	**3.00**

ROUND HEAD, 4¼-INCH SHAFT, FLANGED BASE

Number	41Q	42Q	42R	43R	44R	45R
Extension, inches	18–24	27–34	27–42	34–48	39–54	46–60
Price, each	**2.35**	**2.50**	**2.70**	**2.80**	**2.90**	**3.00**

SQUARE HEAD, 4¼-INCH SHAFT, OPEN BASE

Number	137	142	140U	141S	142S	142T
Extension, inches	12 in. Long	16 in. Long	18–25	21–31	25–35	29–42
Price, each	**2.15**	**2.25**	**2.35**	**2.45**	**2.60**	**2.70**

EXTENSION SECTIONS

Number	49
Increases Length of Box, inches	18
Price, each	.85

COVERS FOR ROADWAY BOXES

Price, No. 22, Plug Covers, each	Net
" " 24, Flush " "	"
" " 26, Lock " "	"

STOP OR SERVICE BOXES

BARRY PATTERN EXTENSION STOP BOX

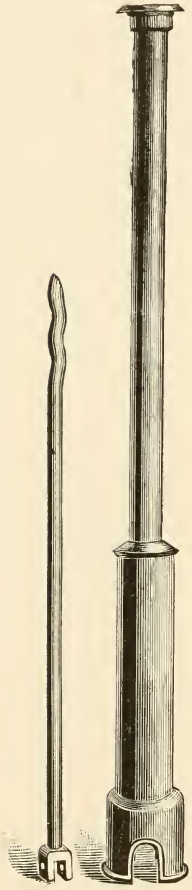


Plate E5601

Made in two telescopic sections, the Top or Cover being extra heavy Cast Iron, screwed into a Brass Flange Coupling at the top of the pipe. The letter W is cast on top of the cover, but Gas can be cast there when so ordered. Can be furnished with Brass Cover when so ordered.

Rod or Key is furnished with a drilled clamp at the lower end to attach to Stop Cock, and the upper end is bent in such a manner that it is always in the center of the box.

Extending or shortening is accomplished by sliding the Cast Iron Lower Section up or down on the pipe.

Length Extended . . feet	2	3	4
Price . . . . . each	**2.00**	**2.20**	**2.40**
Length Extended . . feet	5	6	7
Price . . . . . each	**2.60**	**2.80**	**3.20**
Length Extended . . feet	8	9	10
Price . . . . . each	**4.00**	**4.50**	**5.00**

McDONALD STOP BOX CAP

IRON BODY, BRASS SCREW

Plate E5602

Size . . . . . inches	1½
Price . . . . . each	**.70**

McDONALD STOP BOX

Made of Wrought Iron Pipe throughout and with Brass Screw in the Stop Box Cap; lower end telescoping as shown in the illustration; inner piece being screwed to Minneapolis Stop Cock and telescoped by outer piece to permit extension as needed. Coupling at bottom is regularly sent 1½-inch.

Length . . . . . feet	4 to 5	5 to 6	6 to 7
Price . . . . . each	**2.50**	**2.75**	**3.00**

Price does not include Cock.

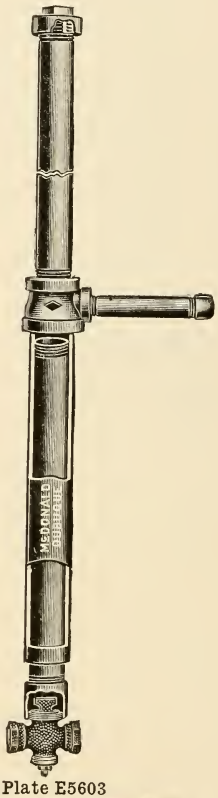


Plate E5603

HITCHING POSTS

TO DRIVE IN GROUND

Plate E5604

These Hitching Posts are made of 1½-inch pipe, with a cap screwed on, the loop being to fasten hitching strap into.

TO BOLT ON

Plate E5605

Price, No. 1	each	**3.00**
" " 2	"	**3.00**
" Caps only, Tapped 1½-in.		**.70**

PEERLESS SERVICE OR STOP COCK BOXES

FOR WATER OR GAS

(Patented)

Plate E5611

With this style of Box, the Cock Handle can always be located upon first effort. The Box can be raised and lowered without digging. If necessary an extension piece can be added to a box already in the ground without digging. The hinged top makes a good job when the box is laid in asphalt or cement. It is the only box that can be set with the trench full or partly full of water. It is especially adapted for use in sandy soil or quick sand.

It is guaranteed to be practically mud, sand and water tight.

It has a heavy cover and top, and a specially strong brass screw, made of a good quality of brass, making an almost unbreakable cover.

This box fits the threads of any Minneapolis Pattern Curb Cock.

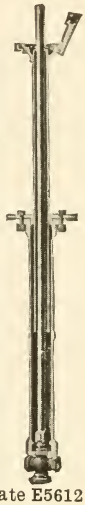


Plate E5612

LONG REGULAR PATTERN

24-inch Lower Section; 1¼-inch Pipe in Upper Section

Number	1	1½	2	3	4	5	6	7
Extension.....feet	2–4	2½–4½	3–5	3½–5½	4–6	5–7	6–8	7–9
Price, Black Pipe.....each	1.50	1.58	1.67	1.75	1.84	2.01	2.18	2.35
" Galv. Pipe..... "	1.64	1.76	1.88	2.00	2.12	2.36	2.60	2.84

SHORT REGULAR PATTERN

12-inch Lower Section; 1¼-inch Pipe in Upper Section

Number.....	01	02	03	04	05	06	07	08	09
Extension.. ....feet	1–2	1½–2½	2 3	2½–3½	3–4	3½–4½	4–5	5–6	6–7
Price, Black Pipe.each	1.20	1·28	1.37	1.45	1.54	1.62	1.71	1.88	2.05
" Galv. Pipe. "	1.27	1.39	1.51	1.63	1.75	1.87	1.99	2.23	2.47

LARGE OR MINNEAPOLIS PATTERN

24-inch Lower Section; 2-inch Pipe in Upper Section

Number.....	1	1½	2	3	4	5	6	7	8	9
Extension..feet	2–4	2½–4½	3–5	3½–5½	4–6	5–7	6–8	7–9	8–10	9–11
Price, Black Pipe.each	2.45	2.57	2.69	2.81	2.93	3.17	3.41	3.65	3.89	4.13
" Galv. Pipe. "	2.65	2.82	2.99	3.16	3.33	3.67	4.01	4.35	4.69	5.03

Covers for long and short regular pattern, each. .25; covers for large pattern each, .35

Malleable Hand Wrenches for Top Screws, each .15.

Keys and Rods for Boxes 2 feet and under in length, each, 1.00.

For each additional foot add, .20

Nipple and Coupling to increase the Bottom Thread in the Long Regular, Short Regular or Large Boxes to 2½, 3 or 4 inches for 1¼. 1½ or 2-inch Minneapolis Cocks furnished as follows: 2 to 2½ inch, .45; 2 to 3-inch, .60; 2 to 3½-inch, .70; 2 to 4-inch, .85.

By attaching Peerless Hoods, this Box can be used in repair work where the Regular Cocks, without Minneapolis Threads, have been installed. Price, each, .40.

Bottom Tappings on Long or Short Regular Boxes can be furnished with 1½ or 2-inch I. P. Thread. Unless otherwise specified, the 1½-inch thread will be furnished.

Bottom Tappings on Large Pattern Boxes can be furnished with either 2 or 2½-inch I. P. Thread. Unless otherwise ordered, 2-inch will be furnished.

SERVICE BOXES

PERFECTION

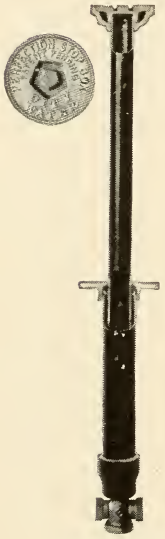


Plate E5621

This stop box will fit any style Minneapolis pattern curb box work. The cover has a double grip slot, four re-enforcing ribs on the bottom with brass ferrule making removal of cover easy and adding to its strength. The upper cup has two holes in the bottom for drain. Stand pipe is made of 1¼, 1½ or 2-inch steel pipe. The winged slip joint packing nut is water tight and still allows the pipe to heave with the ground. The lower casting is tapered so as to locate the curb cock handle easily.

1¼-inch—Small Pattern

Number	04	05	06	07	08
Extension ..... ft. and in.	4–6	5–7	6–8	7–9	8–10
Price, with Black Pipe..... each	**2.00**	**2.25**	**2.45**	**2.65**	**2.90**
" " Galv'd " ..... "	**2.30**	**2.60**	**2.80**	**3.10**	**3.35**

1½-inch—Medium Pattern

Number	14	15	16	17	18
Extension ..... ft. and in.	4–6	5–7	6–8	7–9	8–10
Price, with Black Pipe..... each	**2.75**	**3.00**	**3.20**	**3.45**	**3.70**
" " Galv'd " ..... "	**3.10**	**3.30**	**3.50**	**3.75**	**4.00**

2-inch—Large Pattern

Number	24	25	26	27	28
Extension ..... ft. and in.	4–6	5–7	6–8	7–9	8–10
Price, with Black Pipe..... each	**3.25**	**3.50**	**3.75**	**4.00**	**4.25**
" " Galv'd " ..... "	**3.65**	**3.90**	**4.15**	**4.40**	**4.65**

NORTH STAR

Adopted and in use for twelve years in the city of Minneapolis. No trouble to loosen lid—it lifts as the screw turns. Box is water tight by means of especially prepared graphite packing. A prepared leather washer between cover and lid makes it also water tight. The extension is made of steel pipe screwed to cover and is extensible 18 inches providing for change in street grade or upheaval of ground. The base will admit a threaded nipple which screws to cock but not to base, being held in place by a flexible packing joint. A slight projection underneath cock on base plate allows of further angular movement in case of cock settling.

Number	4	5	6	7	8
Extension ..... ft. and in.	4–5½	5–6½	6–7½	7–8½	8–9½
Price, with Black Pipe...each	**4.10**	**4.50**	**4.90**	**5.30**	**5.60**
" " Galv'd " ... "	**4.50**	**4.90**	**5.30**	**5.70**	**6.00**

Key for covers, 30 cents each. Rods, extra.

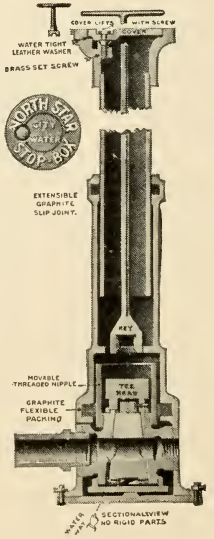


Plate E5622

McDONALD HIGH PRESSURE HYDRANTS

ANTI-FREEZING

COMPRESSION

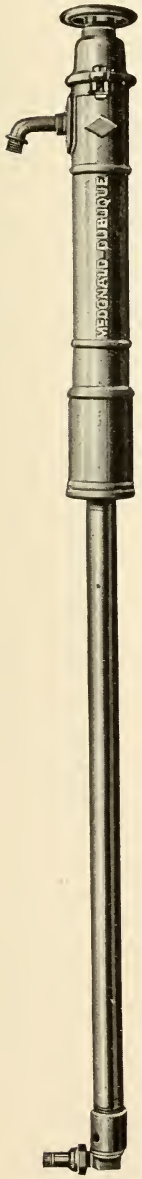


Plate E5631

These Hydrants are strong and simple, suitable for any water works pressures.

Spout moves up and down in operation, and the slot in body is closed against all foreign substances by the sliding spout plate.

All working parts that come in contact with the water are at the bottom, removed from danger of freezing.

Valve Body and Plunger are made of the best Red Brass, heavy and substantial. Valve disc, on the end of plunger, is a Half Rubber Ball of special composition, fitting the concave seat in the valve body, and closing tightly with but little power.

Waste Hole is open when valve is closed, and drains inner pipe perfectly; hence it is anti-freezing.

Top Cap is crowning, and when removed, by unscrewing the bolts, all parts are accessible, and can be removed for repairs without any special tools. The Plunger can be withdrawn and replaced without digging up the hydrant.

Nozzle is cast brass, threaded for hose coupling.

COMPRESSION HYDRANT is operated by a hand wheel, which can be removed and used as a Loose Key. The thread in the Iron Nut opens downward, so that sleet and rain do not run into it and freeze up.

SELF-CLOSING HYDRANT is operated by pressing down on the lever to open. A **DOG** or **LATCH** is attached to the Lever, which holds the hydrant open when desired for use with hose, etc.

SELF-CLOSING

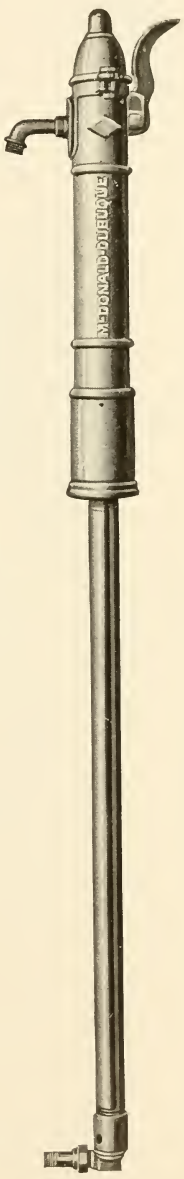


Plate E5632

COMPRESSION

Length to set in ground, ft.	2	3	4	5
¾-inch	9.00	10.00	11.00	12.00
1-inch	11.50	12.50	13.50	14.50

Length to set in ground, ft.	6	7	8	.....
¾-inch	13.00	14.00	15.00	.....
1-inch	15.50	16.50	17.50	.....

SELF-CLOSING

Length to set in ground, ft.	2	3	4	5
¾-inch	11.00	12.00	13.00	14.00
1-inch	13.50	14.50	15.50	16.50

Length to set in ground, ft.	6	7	8	.....
¾-inch	15.00	16.00	17.00	.....
1-inch	17.50	18.50	19.50	.....

Lengths between those listed above take the list price of the next longer length.

HYDRANTS AND STREET WASHERS

McDONALD PIPE HYDRANT

Made up of Standard Red Metal Hydrant Cock, with Black Pipe, and Cast Iron Gooseneck threaded for hose coupling. The rod which operates the Hydrant Cock is strong.

Size Pipe Inches	To Set in Ground Feet	Price Each	Size Pipe Inches	To Set in Ground Feet	Price Each
¾	4	4.00	1	6	6.50
¾	5	4.50	1¼	4	8.50
¾	6	5.00	1¼	5	9.00
1	4	5.50	1¼	6	9.50
1	5	6.00	...	..	....

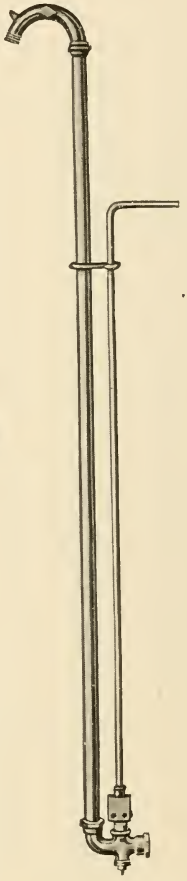


Plate E5643

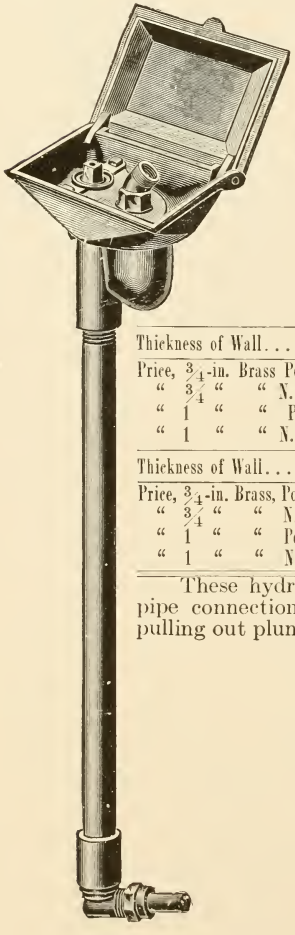


Plate E5641

WALL HYDRANT

Plate E5642

WALL HYDRANTS

Thickness of Wall.....inches	9	13	15	16	18	20
Price, ¾-in. Brass Pol. ....each	3.50	4.00	4.25	4.25	4.50	4.75
" ¾ " " N. P..... "	4.25	4.75	5.00	5.00	5.25	5.50
" 1 " " Pol..... "	7.00	8.00	8.50	8.75	9.00	9.50
" 1 " " N. P..... "	8.00	9.00	9.50	9.75	10.00	10.50

Thickness of Wall....inches	22	24	26	28	30	36
Price, ¾-in. Brass, Pol., each	5.00	5.25	5.50	5.75	6.00	6.50
" ¾ " " N. P. "	5.75	6.00	6.25	6.50	6.75	7.25
" 1 " " Pol. "	9.75	10.00	10.25	10.50	10.75	11.25
" 1 " " N. P. "	10.75	11.00	11.25	11.50	11.75	12.25

These hydrants can be repaired without disturbing pipe connections, by removing lock nut at front and pulling out plunger.

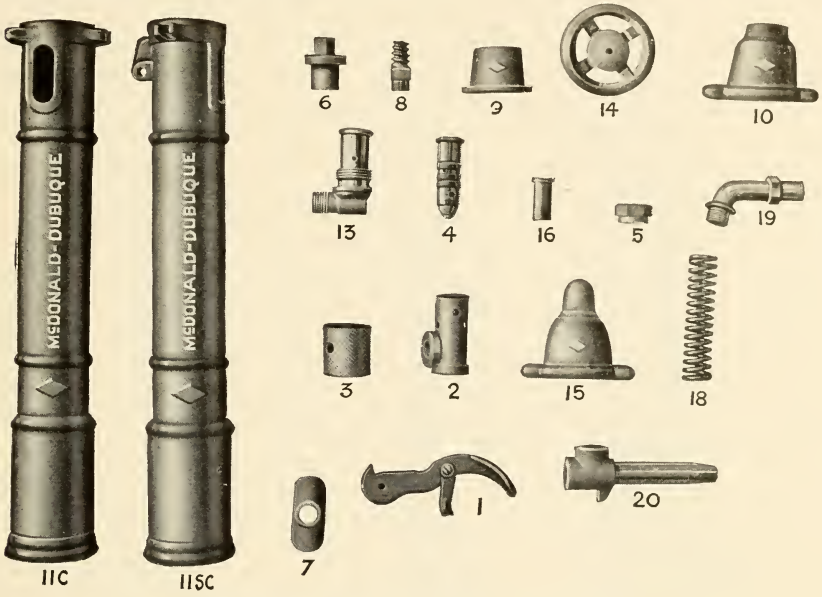
STREET WASHER

McDONALD'S, IMPROVED, HIGH PRESSURE, ANTI-FREEZING, STRONG, SIMPLE, DURABLE

The hose connection at the top is bent (45 degree angle) and has a swivel joint so that the hose may be turned in any direction without kinking it. This feature alone is a great improvement over the old style of stiff joint and will readily commend itself to all dealers and users alike.

Size.....inches	¾	¾
To Set in Ground.....feet	3	4
Price.....each	8.50	9.50
Size.....inches	¾	¾
To Set in Ground.....feet	5	6
Price.....each	10.50	11.50

HYDRANT AND STREET WASHER PARTS



COMPRESSION HYDRANT REPAIRS

Size Hydrant	¾	1
No. 11C, Body	2.00	2.00
" 10, Cap	.60	.60
" 9, Cone	.30	.30
" 14, Wheel Handle	.35	.35
" 6, Iron Nut	.40	.40
" 8, Brass Screw	.75	.75
" 13, " Valve Body	1.75	2.25
" 4, " " Plunger	1.00	1.50
Valve, Complete with Plunger	2.50	3.25
No. 19, Brass Spout	1.00	1.35

Size Hydrant	¾	1
No. 5, Brass Union Nut	.20	.40
" 16, Brass Tail Piece	.20	.35
" 2, Tee for Nozzle	.75	.75
" 3, Coupling faced and drilled	.40	.60
" 7, Plate for Spout, Sliding	.20	.20
Cupped Plunger Leathers	.08	.10
Rubber Seat Ball	.10	.15
Leather Washer for Union Nut	.05	.05
Screw to Fasten Handle	.05	.05
Bolts.....each	.10	.10

SELF-CLOSING HYDRANT REPAIRS

No. 11SC, Body	2.00	2.00
" 15, Cap	.60	.60
" 1, Lever Handle	.50	.50

Latch or Dog	.20	.20
No. 20, Tee for Nozzle or Spout	.75	.75
" 18, Spring	.50	.50

All other parts are same as on Compression Hydrant above.

STREET WASHER REPAIRS

Size.....inches	¾	1
Box	1.00	1.00
Plate	.25	.25
Cone	.25	.25
Key	.25	.25
Iron Nut	.40	.40
Brass Swivel and Screw	1.75	2.25
" Valve Body	1.75	2.25

Size.....inches	¾	1
Brass Plunger	1.00	1.50
Lead Pipe Union, Brass	.40	.75
Cap Bolts.....each	.05	.05
Pipe Coupling	.50	.75
Cupped Plunger Leathers	.15	.20
Rubber Seat Ball	.20	.25

FIRE HYDRANTS

ECLIPSE ANTI-FREEZING

No. 2, FOR PRIVATE CORPORATIONS
1½-INCH 2-INCH

Plate E5661

Plate E5662

No. 4 DOUBLE-VALVE HYDRANT
FOR SPRINKLING PURPOSES

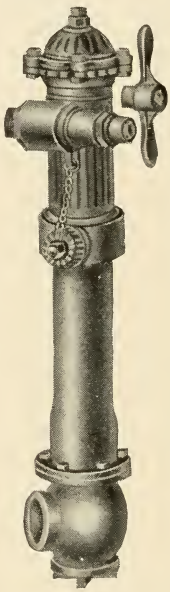


Plate E5663

No. 2—1½-INCH INLET AND OUTLET

To Set in Ground.....feet	1½	2	3	4	5	6	8	10
Price.....each	16.30	16.45	16.80	17.15	17.50	18.00	19.50	22.00

No. 2—2-INCH INLET AND OUTLET

To Set in Ground.....feet	1½	2	3	4	5	6	8	10
Price.....each	22.25	22.50	23.00	23.50	24.00	24.75	27.00	30.00

No. 4—2-INCH INLET AND OUTLET

To Set in Ground.....feet	1½	2	3	4	5	6	8	10
Price.....each	28.25	28.50	29.00	29.50	30.00	30.75	33.00	36.00

No. 4—2½-INCH INLET AND OUTLET

To Set in Ground.....feet	1½	2	3	4	5	6	8	10
Price.....each	32.25	32.50	33.00	33.50	34.00	34.75	37.00	40.00

The No. 2 hydrant is designed for private purposes, such as for stockyards, factories, lumberyards, railroads, fertilizing purposes, etc. The No. 4 hydrant is designed for sprinkling or other purposes, where hydrant is to be operated very often each day.

Unless otherwise ordered, inlet is made for wrought iron pipe.

FIRE HYDRANTS

ECLIPSE ANTI-FREEZING

No. 3

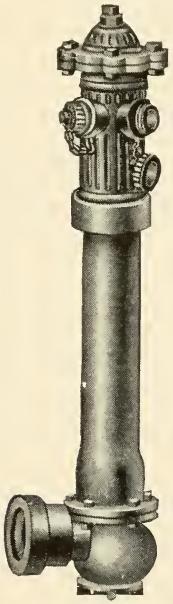


Plate E5671

STANDARD HYDRANT

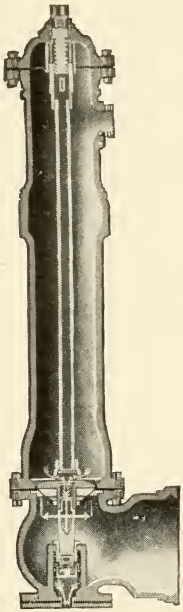


Plate E5672

No. 3

Diam. of Inlet Pipe Inches	Pavement to Center of Inlet Feet	One 2½-in. Hose Nozzle	Two 2½-in. Hose Nozzle	Three 2½-in. Hose Nozzle	One Steamer Nozzle	One Steamer and One 2½-in. Nozzle	One Steamer and Two 2½-in. Nozzles	Frost Case Standard Length	Each Ft. in Length of Standpipe Extra	Each Ft. in Length of Frost Case Extra
3	5	32.00	34.00	36.00	34.00	36.00	38.00	7.00	1.50	1.00
4	5	32.00	34.00	36.00	34.00	36.00	38.00	7.00	1.50	1.00
5	5	34.00	36.00	38.00	36.00	38.00	40.00	7.00	1.50	1.00
6	5	34.00	36.00	38.00	36.00	38.00	40.00	7.00	1.50	1.00

No. 6

6	5	47.00	49.00	51.00	49.00	51.00	53.00	10.00	2.25	2.00

No. 10

6	5	47.00	49.00	51.00	49.00	51.00	53.00	10.00	2.25	2.00

Nos. 6 and 10 hydrants are same as No. 3, except having a larger valve opening and standpipe.

Hydrants to be set 7 feet in the ground, or deeper are furnished with wrought iron standpipe in which event add 3.00 per foot to above list.

In ordering always give following information, viz.—

Whether wrought iron pipe thread, flange, bell or spigot connection. Size of bottom connection. Length from pavement to center of inlet. Size and form of nut to open hydrant. Whether to turn to right or left to open. Number and size of nozzles. Send hydrant cap or hose coupling for gauge of thread.

Unless otherwise ordered, hydrant thread will be made to open by turning to the **left.** Frost cases furnished if desired.

WATER MOTORS AND FANS

SPECIALTY WATER MOTOR

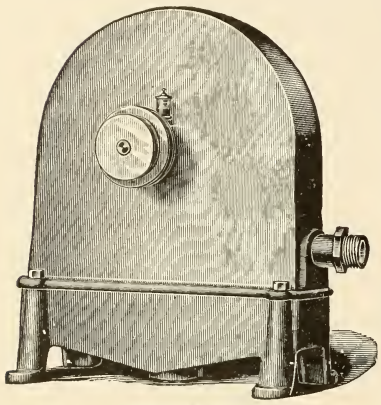


Plate E5681

A high-grade, high-speed motor for use on the ordinary house service and waste.

Designed for operating family sewing machines, dental lathes and engines, telephone generators and any machine requiring similar power.

The jet holder is so constructed that the water enters and passes through the jet with absolutely no disturbance or agitation.

These motors are guaranteed not to leak. Furnished with fittings for hose connections and grooved cone pulley for two speeds, and develop from 1/10 to 1/4 horse power at a speed of 1200 to 2500 revolutions per minute. The inlet fitting is for 3/4-inch hose coupling.

Price.....each **25.00**

WATER MOTOR DESK FANS

TRIUMPH SINGLE

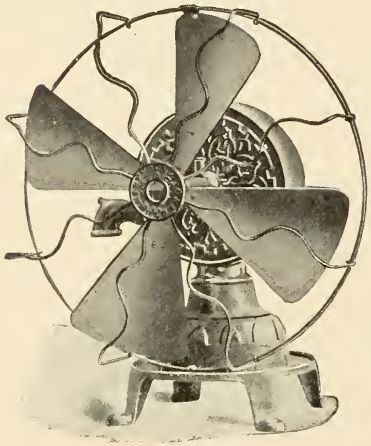


Plate E5682

JUNIOR SINGLE

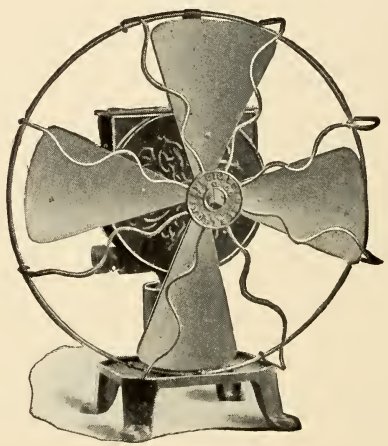


Plate E5683

These desk fans are operated by water pressure and are expressly designed for use in offices, hospitals, dining rooms, bed rooms, etc. The Triumph Double has two fan wings, blowing in opposite directions. The complete motor of the Triumph is made of nickel-plated brass. The Junior is a first-class fan designed to meet the demand for a cheaper fan; the motor and base are neatly enameled in black. Above fans have 13-inch diameter fan wing.

Style	Weight Boxed Pounds	Price Each
Triumph Single	20	**10.00**
" Double	20	**12.50**

Style	Weight Boxed Pounds	Price Each
Junior Single	15	**6.50**
.....	..	....

NIAGARA WATER METERS

Patented

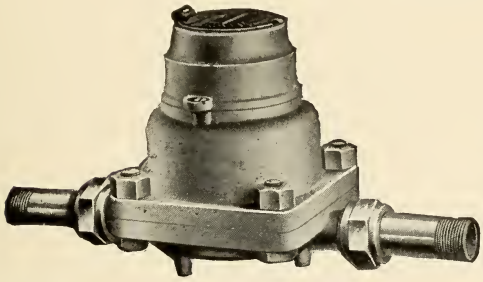


Plate E5691

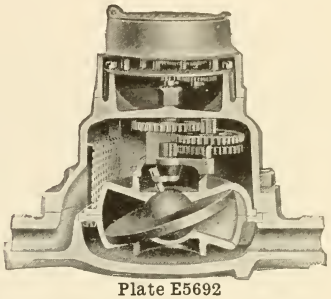


Plate E5692

The new Niagara Meter has the outer casing made of a fine grade of cast iron, carefully galvanized, and tested to 300 pounds pressure per square inch. When a meter is frozen, one half of the outer case usually breaks, thus relieving the inner and more expensive parts from injurious strain.

The works are carefully made on the interchangeable plan, from bronze composition, hard brass, hard rubber and German silver; they are protected by an internal strainer.

The measuring chamber is of large capacity, and is fitted with an extra thick, reenforced measuring disc.

The intermediate gears revolve on protected pivot bearings which reduce friction and wear, and prevent dirt from entering the gear bearings.

The flow of water through the meter is downward, which tends to flush out all sediment and sand, and thus keeps the meter in an operative and sanitary condition.

All sizes may be regulated for unusual pressures by slightly rotating the measuring chamber upon its seat and thus covering more or less of the outlet in the meter base.

The Niagara Meter contains only seven submerged working parts and is wonderfully simple and accessible for inspection and repair. It may have either a standard or a straight reading dial, indicating cubic feet or gallons, at buyer's option.

All sizes and styles from 5/8 to 2-inch, inclusive, are made with male spuds to receive brass union couplings.

Meters can also be supplied with all bronze and part bronze cases, and for measuring gasoline, fuel oil, etc.

Size.....inches	5/8x1/2	5/8x3/4	3/4	1	1 1/4	1 1/2	2	2 1/2
Greatest Proper Capacity per minute..cu. ft.	3	3	5	8	12	16	24	32
Iron Pipe Size of Coupling.....inches	1/2	3/4	3/4	1	1 1/4	1 1/2	2	2 1/2
Height..... "	6 1/2	6 1/2	6 3/4	7 1/2	8 3/4	10 1/4	11	12 1/2
Width..... "	6	6	7	8	9 1/4	10 1/4	12 3/4	15
Length, Meter only..... "	7 3/8	7 3/8	9	10 1/2	11 1/4	13	15 1/2	18 1/4
" including Couplings... "	12 1/2	12 1/2	14	16	16 3/4	18 1/2	21 1/4	24 1/2
Weight, Boxed.....pounds	14	14	20	28	40	60	100	150
Price.....each	**16.00**	**16.00**	**24.00**	**32.00**	**48.00**	**64.00**	**96.00**	**128.00**
" Brass Couplings.....per set	**1.00**	**1.50**	**1.50**	**2.00**	**3.00**	**4.00**	**6.00**	**8.00**

5/8-inch meters furnished for either 1/2 or 3/4-inch pipe.

ANDREWS
SANITARY STEEL SEPTIC TANK SYSTEM

FOR SEWAGE DISPOSAL WITHOUT SEWER

Plate E5701

The modern advancement of nearly all features relating to modernizing the home in districts where city improvements are not complete, has reached a high mark, but there is one line which for some reason has been much neglected. It, too, is one which is vital. Upon it depends the health of communities. The disposal of sewage is a problem which is now attracting the attention of sanitary engineers and suburban home owners, and out of the consideration they are giving it, will develop a firm determination to avoid cesspools and outhouses wherever possible. Sewage is composed largely of organic matter which becomes putrid when contained in vaults which do not permit of proper bacterial action.

Cesspools and outhouses are exceedingly unsanitary. It is never known just how long a cesspool will last and it is not always easy to have it cleaned just the moment it is filled. When it is necessary to clean one in the winter the expense is about as great as the cesspool's first cost. Then there is the danger of contamination of water supply and the possibility of causing typhoid. In this the outhouse is as dangerous, if not more so, as the cesspool, for the latter is more frequently used in districts in which the water supply is not from wells. An outhouse needs very frequent cleaning, is never odorless and is very unsightly.

The Andrews Steel Septic Tank is the cheapest method of sewage disposal which can be depended upon to give genuine satisfaction. It is all in one piece, is comparatively light and easy to handle, is scientifically proportioned so as to perform its work perfectly and will last as long as your house. Nothing to get out of order.

Construction.—This system consists of a steel septic tank and a filter bed over which the tank discharges through drain pipes its contents which have been previously made odorless and harmless. The tank is sufficiently large to take care of the sewage for a house of eight people. It is built of plate steel like large power boilers, and thoroughly tested in every manner before it is sent from our shop. It is provided with two compartments, the intake being provided with special fittings so that the soil pipe for the house drain can be easily connected. The organic matter is changed into liquid which is then automatically syphoned out of the second compartment and delivered over the filter bed through the drain pipes. A vent pipe and cleanout openings are provided at both top and bottom.

Operation.—After the bacteria have begun their work in the tank, it is in full working trim and requires no more attention from the owner. Once a year or less it may be advisable to remove a few pails of sludge from the tank, but this is a small chore and requires only a few minutes time. It has been the case that even after a period of two years it was not found necessary to remove the sludge.

ANDREWS
SANITARY STEEL SEPTIC TANK SYSTEM

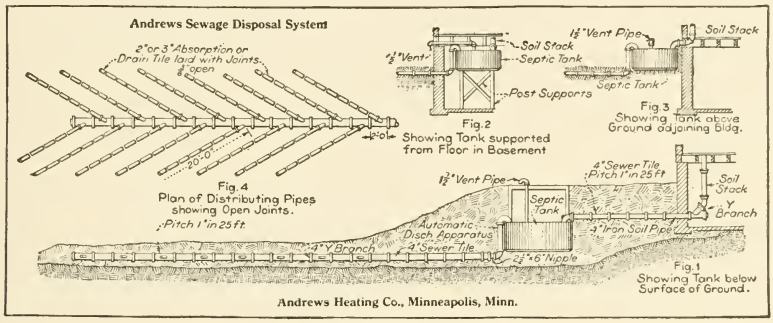


Plate E5711

Adapted to All Conditions.—The Andrews Septic Tank is set up in any one of three methods. For ordinary suburban homes where the lot is limited and there is no slope to the ground, the tank can be located either in the basement close to the underside of the joists, or outside of the house adjoining the basement wall, so that the discharge, in either case, will come far enough below the ground to conform with standard practice. If the land slopes away from the house, the tank can be located away from the house at some distance below the surface and a wooden or brick manhole built up to grade. The illustration above shows these methods of installation as well as showing the filter bed.

Wastes Reduced to Odorless and Harmless Liquids.—The method by which these wastes are reduced to a harmless liquid is as follows: The sewage consists of mineral and organic matter in which a large number of living organisms called bacteria are present, a large percentage of which are of a harmless nature and are essential agents in the removal of the organic matter and disease germs in the sewage. These bacteria start up an active fermentation process which results in the decomposition of the organic matter into harmless inorganic substance and liquid. A part of this decomposition takes place in the septic tank itself, while the action of the oxygen in the air and bacteria present in all soils when the liquids are spread out on the filter bed or disposal field, completes the final decomposition of the waste. Technically speaking, the bacterial action first takes place in the tank, due to anaerobes which work without oxygen; second, action is due to aerobes which require oxygen to do their work properly.

The Filter Bed.—The tank is connected to the filter bed by 4-inch sewer tile with cemented joints. The piping in the bed proper is of "Y" fittings from which 3 or 4-inch porous drain tiles are laid with open joints and about 1 foot below the surface.

In cases where the soil is porous or of a sandy nature, there is no necessity of preparing a filter bed. In case the soil is more or less hard and unsuitable for drain work, three or four times the quantity of drain tile may be used so as to spread the discharge over a larger surface, or a special filter bed surface may be prepared of sand and gravel.

Material Furnished.—Steel septic tank with special intake fitting for 4-inch soil pipe and syphon connection, with special instructions and blue prints for erecting. Septic tanks built in three sizes with listed capacities based on general home use. Double the capacities given when used intermittently, as in case of public building, schools, etc.

Size Number	Capacity People	Diameter Inches	Weight Pounds	Price Each
12	6 to 12	53	800	170.00
30	25 " 30	72	1400	320.00
75	70 " 75	96	2400	490.00

STEEL SEPTIC TANKS

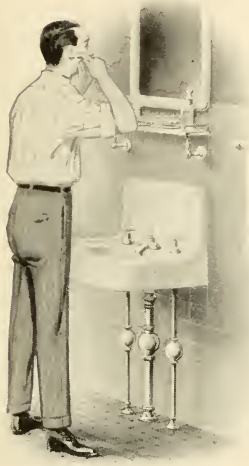
Plate E5721

Septic tanks are used principally by the better class of farmers who are now coming to realize that they can have the same comfort and sanitary appliances in their farm houses as a city residence can have and they are also used in country clubs and summer homes. They can be, and are, used throughout the year providing they are reasonably protected from frost. They are placed any distance from 50 feet to 200 feet from the house and there is practically no odor coming from them. The tanks are made with an inlet and outlet of the proper size to receive a 4 inch sewer pipe. The inlet and outlet are so arranged that the surface of the water is not disturbed and baffle plates are so placed that little or no solid matter can flow past them. The tank is naturally located at some incline, that is, near a gully or a creek or the edge of a lake.

From the tank clear water will run except that it will be somewhat discolored and this should be run through a filtering bed made of crushed stone or other material that will leave openings through it, the filtering bed being perhaps 3 feet deep, 10 feet wide, and 15 feet long. From the filtering bed, the water which has now become clear, can be run to the gully or lake or stream. The septic tank should be as near the final end of the system as is possible, leaving room for a filtering bed on the other side of it and a few lengths of sewer pipe. It does not seem possible that all of the sewage including toilet paper, etc., will be taken care of in this way, but septic tanks 42 inches in diameter, 55 inches long have been known to take care of all the sewage coming from a family and required cleaning only once in ten years, at which time it was done more out of curiosity than necessity.

Diam. Inches	Length Inches	Capacity Persons	Price	Diam. Inches	Length Inches	Capacity Persons	Price
36	50	6	**70.00**	48	96	20	**195.00**
36	60	10	**80.00**	60	120	50	**295.00**

McDONALD WATER SUPPLY SYSTEMS



A McDonald Water Supply System is one of the advantages that can now be enjoyed by residents on farms, and in towns and villages which have no regular water works system. In many cases several residents of a town will combine and put in a system supplying water to their premises. After many years of service, they are as good as new.

Another field for McDonald Water Supply Systems is at summer homes of city people, where an ample supply of water is needed for domestic use, lawn sprinkling, gardens, etc. In many of these cases a lake is available as a source of water supply. One of our Water Supply Systems will give all the water needed and at a pressure equal to that of city water works, and when the house is closed for the winter it can be entirely emptied in a short time and the owner can be sure that no damage can be done while the house is unoccupied. Besides, the location of hose connections outside the building, will give reasonable fire protection, enough to extinguish fires in the early stages, and to protect the building from outside fire exposure. Sixty pounds pressure in the tank, will force water to a point 135 feet high while 20 pounds will raise it 45 feet.

On farms, our Water Supply System is of great value, in that it will supply water where needed when it is wanted. It reduces the labor of every one on the farm, as the water can be piped to barn, milk house, pasture, feed lot, etc., as well as into the house to supply range boiler, sink, laundry, bath tub, lavatory and water closets. In the house, it is of great help to women folk, as it saves them so much hard work. In Missouri, Prof. W. L. Nelson, Asst. Secretary of Agriculture of Missouri, put the question to the wives of farmers as to "What one change or improvement would be of the greatest benefit to the house or which one would you yourself rather have?" Fifty-three per cent of the women answered "The greatest need in the farm house is some system of running water." Mr. Nelson continued, "Running water means less need for hired help, it means, also, that it would be easier to get this help, it means for all a reduction in the daily work. The kitchen sink is still a luxury to too many farmers' wives. It should be considered a necessity."

A McDonald Water Supply System can be made of great value on the farm as a means of fire protection. By locating yard hydrants reasonably adjacent to the various buildings on the farm, comparatively short pieces of hose and nozzles will throw water all over any of the buildings, giving a good chance to extinguish the fire, or at least save all but the building where fire started.

McDonald Water Supply Systems are adapted to any source of water supply, whether cistern, drive well, shallow or deep well, springs, river or lakes. They include a Pressure Tank, a Pump of the style needed by the source of water supply, and the necessary valves, gauges, etc., as illustrated in this catalog. The Pressure Tank can be located at any convenient place, in cellar, in barn or buried below freezing point in the ground. The Pressure Tank has so many advantages over the old elevated tank that it is not worth while to try to enumerate all of them. But the troubles with elevated tanks are numerous, such as danger of freezing, frequent painting, liability to leakage, and danger of collapse, etc., none of which can happen to a Pressure Tank properly installed. And Pressure Tanks do not cost much, if any, more than elevated tanks of equal capacity, and the service they render is so far beyond that of the elevated tank that any slight difference in cost is of no consequence.

McDONALD WATER SUPPLY SYSTEMS

(CONTINUED)

Many shops and factories, beyond reach of City Water Works, install these Water Supply Systems, for use about the factory as well as to supply their lines of fire protection pipes. One large warehouse in San Francisco is equipped with its own Water Supply System, driven by a gasoline engine and drawing water from a deep well; this was installed because of the earthquake breaking the water mains of the city, the owner decided to have means of his own inside his building for fighting fire, so installed this system, and the Pressure Tank is kept constantly at 60 pounds pressure. There may never be another disastrous earthquake in San Francisco, but he is ready for it anyway so far as fire protection goes.

The operation of our Water Supply Systems is as follows: Force water into lower opening of Pressure Tank, thus compressing the air in the tank above the water; this can be done till there is 80 pounds or more pressure in the tank. Now the air compressed in upper part of tank is elastic, and will force the water below it in the tank out through the discharge pipe to supply faucets and other fixtures with water. As the elasticity of the air gives the power which forces the water through the pipes, it is necessary that the tank be kept supplied with air. So in the first place the water enters and leaves the tank from the bottom, the air always being above the water in the tank. Never take any connection from top of pressure tank for any purpose. But one fact has been proven, and that is that water under pressure absorbs air confined in the same tank with it. Absorption of air by the water is not a rapid process, but particularly when well water is used, in a few weeks so much air will have been absorbed by the water as to materially reduce the amount of water which Pressure Tank will deliver. To maintain the air supply of Pressure Tanks and replace what has been absorbed by the water, we have supplied our pumps, both for Shallow and Deep Wells, with devices which will positively maintain a proper air supply in Pressure Tanks.

But as a supply of Water is the primary reason for a Water Supply System, **McDONALD PUMPS**, shown on following pages, have been designed to supply Pressure Tanks with Water as well as Air. Too much emphasis is sometimes given to Air Supply in connection with Water Supply Systems when really a Water Supply is the one important item. So our Pumps in the first place are intended to furnish a reliable supply of Water to Pressure Tanks, and incidentally to maintain the Air Supply in the Tank. We are pioneers in Pressure Water Systems, and have developed our line of pumps along lines proven satisfactory by years of service. For Air Supply in connection with various types of pumps, our special "Intake Air Valve" or Air Compressor is fitted on all our Horizontal Double Acting Force Pumps, and our Brass Air Compressor on all our Deep Well Pumps and they positively maintain a sufficient supply of air in Pressure Tank, and are the simplest, best and most positive on the market.

PRESSURE TANKS must be air tight as leakage of air prevents satisfactory operation of the system. All tanks are tested with 125 lbs. air pressure before shipment, and will not leak unless damaged. Only the best of material is used in our tanks, and the most approved machinery insures perfect punching, shearing, rolling, etc.

The **SPECIAL HORIZONTAL IRON CHECK VALVES** shown in the following pages, have been made to meet the needs of Pressure Systems. A common brass or iron check valve is of little value on the discharge pipe of pumps in Water Systems, as they are not quick enough or positive enough where air is being added to the tank with the water. This should be located as close to the pump as is practical.

McDONALD WATER SUPPLY SYSTEMS

CONTINUED

The **DIAMOND RELIEF VALVE** should be used on every Power driven Water Supply System, whether Engine, Electric or Windmill, to prevent excessive pressure injuring the tank, pipes or fittings. It is usually sent set to relieve at 70 pounds pressure which is really more pressure than is desired in most cases. It is best to install the Relief Valve between the Pump and the Horizontal Check Valve.

On the following pages we show and describe a number of our Water Supply Systems, including the Tanks, Pumps, Engines, Motors, Valves, etc., which are used in installing them.

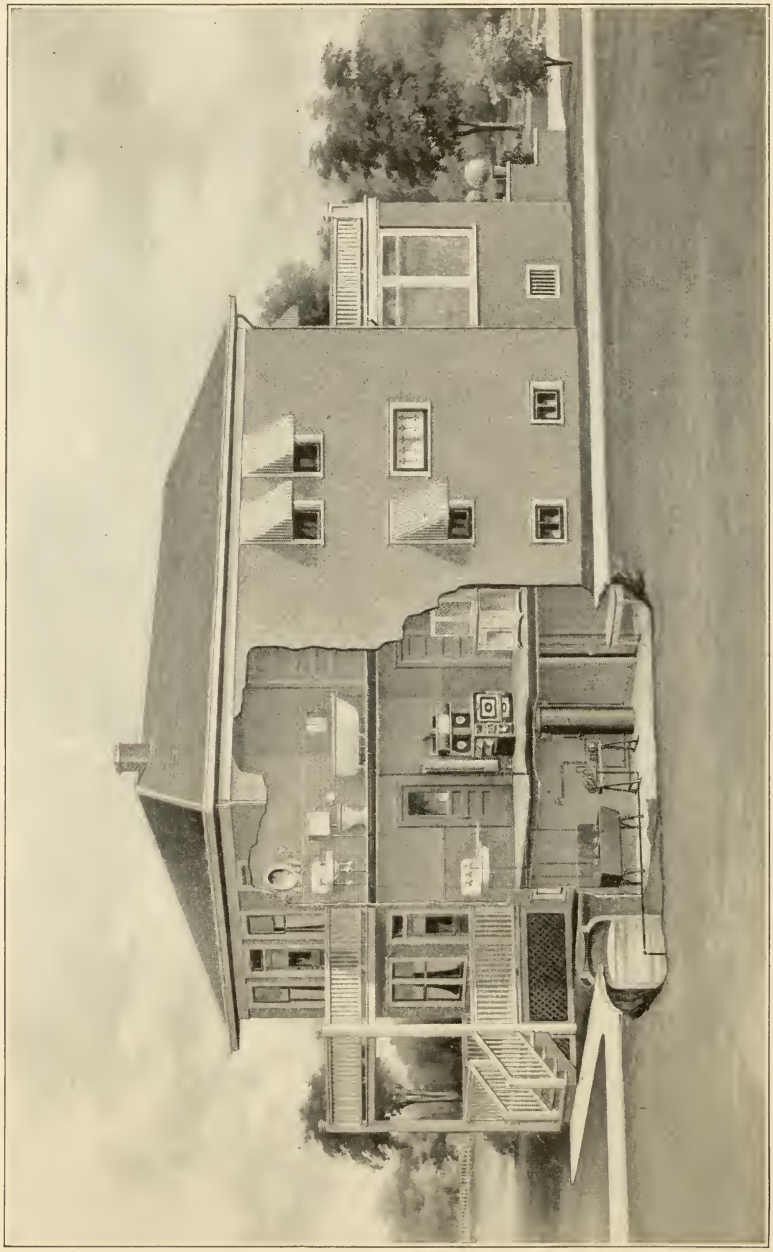
We recommend the use of the Automatic Gasoline Engine Switch with our Gasoline Engine as it will cut the battery current off the engine when there is a certain desired pressure in the tank, thus stopping the engine. It is a great convenience and worth the money as a safety appliance.

We have also thoroughly tested out the Electric Motors and Automatic Switches, and can furnish them to suit the varied requirements of different local conditions. It is necessary to know the kind of Electric Current, whether Alternating or Direct, Voltage, etc., and we advise our customers to get this information from their Electric Light Company before ordering, thus saving delay.

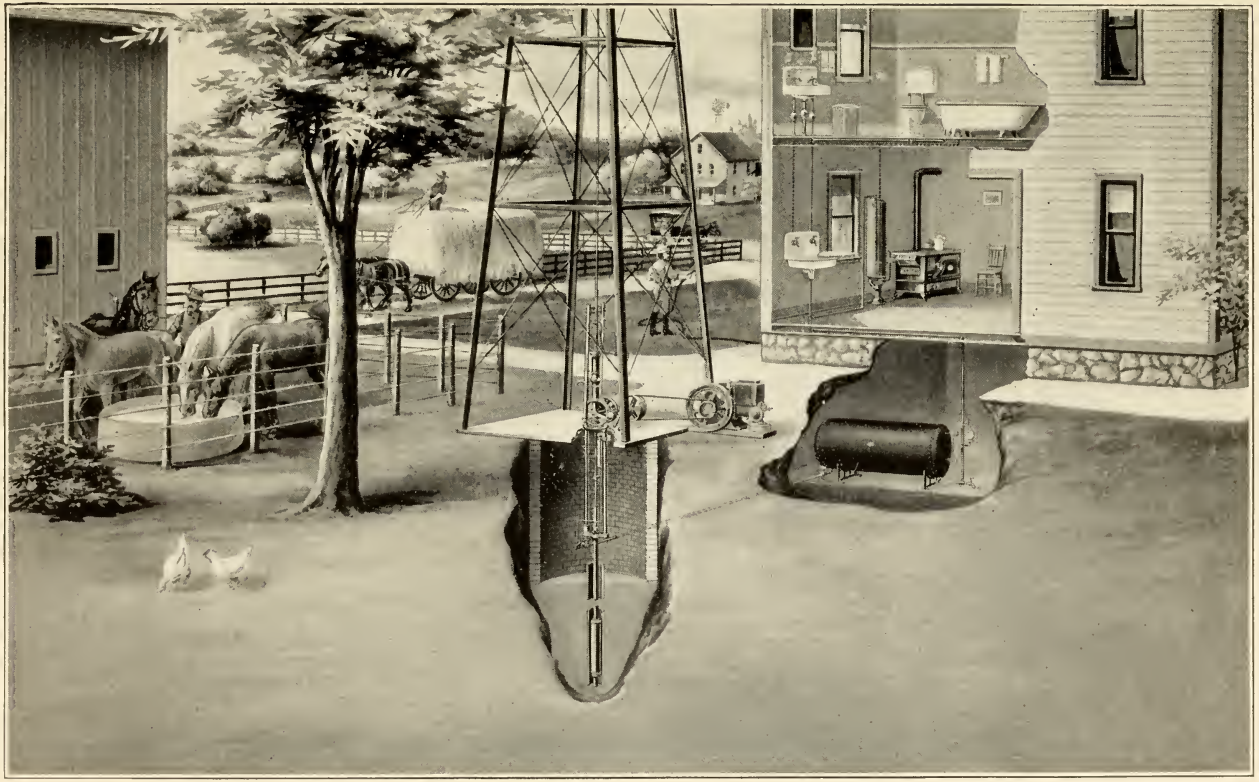
In all the Water Supply Systems shown and priced on the following pages, please note that the prices do not include any pipe or fittings, simply the list of material listed. It would be impossible for us to price pipe and fittings as each installation must of necessity be differently situated as to water supply, discharge, etc.

McDonald Water Supply Systems are so simple and easy to install that we know that any of our customers can go right ahead and put them in without having any trouble. Only be sure to figure the cost of the pipe and fittings needed as they are not included in the list Price. The important thing needed to properly install them is to see that all pipe connections are air tight, which is easily done by using any good pipe joint compound. By selling and installing McDonald Water Supply Systems, you are really a benefactor, besides opening up an extensive field of business for yourself.

In starting a **McDONALD** Water Supply System, we advise pumping a few inches of water into the tank, sufficient to cover supply and discharge openings. Then add 10 lbs. of air pressure by means of an independent air pump, or one of our Horizontal Double-acting Force Pumps, which latter can be used by placing a ½-inch stop cock in the suction pipe, close to the pump, and pumping air until the 10 lbs. pressure is obtained, when the ½-inch stop cock is closed and water only is pumped till desired pressure is reached. The addition of 10 lbs. of air is easy when there is no pressure in the tank, but it takes some time to get it, and its great advantage is that it will discharge practically the entire contents of the tank to a point approximately 25 feet above the tank. After the first 10 lbs. of air is added to the tank, the Intake Air Valves or Air Compressors attached to our pumps will maintain the air supply and prevent waterlogging.



ABOVE ILLUSTRATION SHOWS INSTALLATION OF ONE OF THE McDONALD AUTOMATIC ELECTRIC PUMPS WHICH ARE SO RELIABLE AND YET ENTIRELY AUTOMATIC



ABOVE ILLUSTRATION SHOWS AN INSTALLATION OF McDONALD WATER SUPPLY SYSTEM. THE UNDERGROUND WATER AND AIR PUMP CAN BE OPERATED BY EITHER WINDMILL OR GASOLINE ENGINE. THE UNDERGROUND DISCHARGE IS BELOW FROST LINE SO IT CAN BE SAFELY USED ANY TIME OF THE YEAR.

McDONALD WATER SUPPLY SYSTEMS

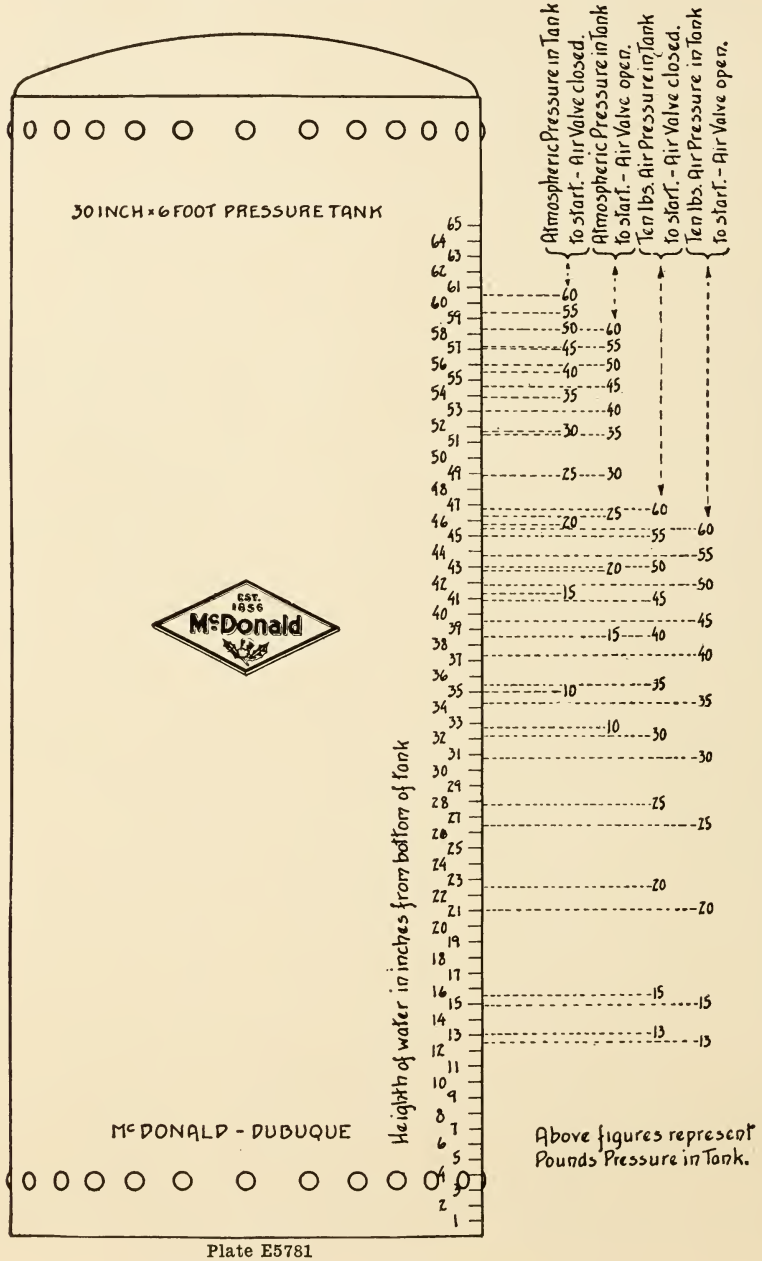

30 INCH × 6 FOOT PRESSURE TANK
McDonald
EST. 1856
McDONALD - DUBUQUE
Height of water in inches from bottom of tank
Atmospheric Pressure in Tank to start. - Air Valve closed.
Atmospheric Pressure in Tank to start. - Air Valve open.
Ten lbs. Air Pressure in Tank to start. - Air Valve closed.
Ten lbs. Air Pressure in Tank to start. - Air Valve open.
Above figures represent Pounds Pressure in Tank.

Plate E5781

SEE FOLLOWING PAGE FOR EXPLANATION

McDONALD WATER SUPPLY SYSTEMS

In our experiments we made use of a 30-inch x 6-foot tank and the ratings will hold good in any other size tank if proportionately applied.

On the accompanying illustration, the column of figures within the tank represent a scale in inches, while the figures to the right of the tank show the various pressures; likewise, the corresponding water levels of each recorded pressure by comparing to the inch scale within the tank.

We used our Fig. 46 Horizontal Double-acting Pump. In the first test, the intake air valve was closed while in the second test the intake air valve was open while pumping. In the third test, we started with an initial air pressure of 10 pounds in the tank, operating the pump with the intake air valve closed; while in the fourth test, starting out with an initial air pressure of ten pounds in the tank, we operated the pump with the intake air valve open.

In the first test, we put 35 inches of water in the tank to register 10 pounds, while in the second test only 32¾ inches of water were necessary to register 10 pounds, the difference being 2¼ inches and this difference is accounted for by the fact that in the second test the intake air valve was open, thus demonstrating conclusively that the intake air valve supplies air liberally to the tank, being in this case 2¼ inches of air under 10 pounds pressure; hence, there can no longer be any question as to the practical reliability of the intake air valve to keep an ample supply of air in the tank to prevent its waterlogging. Now, consider the desirability of starting the system with an initial air pressure of 10 pounds by comparing the first test to the test No. 4. In making this comparison, we are considering 15 pounds the minimum pressure because with the tank in the basement, this pressure would just give approximately 3 pounds to any plumbing fixture on the second floor and we will consider 40 pounds the maximum pressure as that, we believe, is the average for ordinary household use.

In the first test, it will be seen that between the minimum (15 pounds) and the maximum (40 pounds), we have a variation of 14¼ inches in the water level in the tank and as there are 3.06 gallons to the inch, it appears that we have 43.6 gallons available for use, and in order to get this amount it was necessary in the first instance to pump up 55½ inches of water or a total of 170 gallons, i.e., to get 43 gallons available supply we must pump a total of 170 gallons.

Now, in the fourth test, the difference between the minimum (15 pounds) and the maximum (40 pounds), is 22½ inches which represents a capacity of 69 gallons to get which it has been necessary to pump 37½ inches of water in the tank. In other words, we have only pumped a total of 115 gallons of which amount we have 69 gallons available.

The total volume of the water pumped to start the tank, is to be considered only on the initial filling of the tank because thereafter the water practically never drops below 15 pounds level and it is interesting to note that in the first case it was necessary to pump 170 gallons, while in the fourth test it was only necessary to pump 115 gallons, a difference of 55 gallons to reach a 40-pound pressure the difference being over 25 per cent.

In the first case, we have only 43 gallons available while in the second case, we have 69 gallons available; a difference of 26 gallons available water supply or over 60 per cent more water available with the same maximum pressure of 40 pounds in either case. Note that we have 60 per cent more water available, yet we have pumped 25 per cent less water. This is an astonishing result.

It is to be remembered that the power applied to the pump handle to raise the pressure from 15 pounds to 40 pounds is exactly the same in either case.

Every system is operated on a reasonable minimum and maximum pressure, therefore, the volume of water available is of prime importance.

A little consideration of the figures in the outline illustration will clearly show the desirability of starting a system off with an air pressure in the tank.

McDONALD WATER SUPPLY SYSTEMS

RIVETED VERTICAL TANKS WELDED

Plate E5801

Diameter Inches	Length Feet	Shell Inches	Head Inches	Approximate Weight Pounds	Capacity Gallons	Price Each Black
24	5	3/16	5/16	360	120	**105.00**
24	6	3/16	5/16	400	145	**115.00**
24	10	3/16	5/16	550	245	**165.00**
30	6	3/16	5/16	500	220	**154.00**
30	8	3/16	5/16	610	295	**189.00**
30	10	3/16	5/16	725	365	**224.00**
36	6	3/16	5/16	640	315	**206.00**
36	8	3/16	5/16	740	420	**251.00**
36	10	3/16	5/16	850	525	**291.00**

All tanks are tested at 125 pounds air pressure, and guaranteed for 85 pounds working pressure.

All tanks 6 feet long are tapped for both horizontal and vertical use. 8-foot tanks and larger will be tapped likewise, if ordered.

All longitudinal seams are riveted and brazed. Heads are welded to shell. Tanks 5 and 6 feet long are rolled from a single sheet to avoid circular seam in center.

Inlet and outlet tapped 1¼ inch. Water gauge tapping ½ inch by 15½ inches center to center. For tanks of larger sizes, write for quotation.

McDONALD WATER SUPPLY SYSTEMS

HORIZONTAL TANKS, RIVETED AND BRAZED

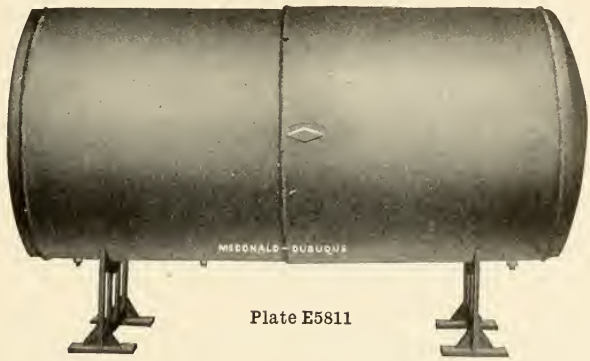


Plate E5811

Diam. Inches	Length Feet	Shell Inches	Head Inches	Approx. Weight Pounds	Capacity Gallons	Price Each Black
24	5	3/16	5/16	360	120	**105.00**
24	6	3/16	5/16	400	145	**115.00**
24	10	3/16	5/16	550	245	**165.00**
30	6	3/16	5/16	500	220	**154.00**
30	8	3/16	5/16	610	295	**189.00**
30	10	3/16	5/16	725	365	**224.00**
36	6	3/16	5/16	640	315	**206.00**
36	8	3/16	5/16	740	420	**251.00**
36	10	3/16	5/16	850	525	**291.00**
36	12	3/16	5/16	1020	630	**331.00**
36	14	3/16	5/16	1200	735	**376.00**
42	8	3/16	3/8	1120	575	**367.00**
42	10	3/16	3/8	1260	720	**429.00**
42	12	3/16	3/8	1450	865	**491.00**
42	14	3/16	3/8	1650	1000	**553.00**
48	10	1/4	3/8	1770	1000	**504.00**
48	14	1/4	3/8	2350	1300	**648.00**
48	16	1/4	3/8	2830	1500	**722.00**
48	20	1/4	3/8	3390	1880	**873.00**
48	24	1/4	3/8	3920	2260	**1017.00**

Tested at 125 pounds air pressure, and guaranteed for 85 pounds working pressure.

All tanks 6 feet long tapped for both horizontal and vertical use, longer tanks tapped horizontally only.

All longitudinal seams are riveted and brazed. Heads are welded to shell. Tanks 5 and 6 feet long are rolled from a single sheet to avoid circular seam in center.

Inlet and outlet tapped 1¼ inch, but will be tapped as large as 2 inches without additional charge. Water gauge tapping ½ inch by 15½ inches center to center.

Manhole in Shell.....each **45.00** Manhole in Head.....each **30.00**

Flanged Openings.....inches	2½	3	3½	4
Price.....each	**8.00**	**9.00**	**9.00**	**10.00**

IRON TANK STANDS

Diameter of Tank.....inches	24	30	36	42	48
Price.....per pair	**5.25**	**5.25**	**7.00**	**14.00**	**19.00**

McDONALD WATER SUPPLY SYSTEMS

AUTOMATIC ELECTRIC DOUBLE ACTING FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

PLATE E5831

On the following page is shown a McDonald Water Supply System with an Automatically Controlled Motor, Double Acting Power Force Pump, and Vertical Pressure Tank, suitable for supplying water under pressure to residences, small apartment buildings, etc. It is complete as shown, except pipe and pipe fittings, which are governed by the location of the Pump, Tank, Cistern, etc. The Pump has a **CAPACITY OF ABOUT 180 GALLONS PER HOUR,** and is practically **NOISELESS IN OPERATION.**

Pump, Electric Motor, and Automatic Control Switch are all mounted on a 2-inch plank, securely fastened to cast iron legs, as shown, or on cast iron brackets when so ordered.

PUMP

BRASS LINED CYLINDER is cast integral with the Valve Chambers, with the Valves clustered above it, so that the pump cannot lose its priming. The **VALVES** are Cast Brass, ground to fit on Cast **BRASS SEATS. PISTON ROD** and **PACKING GLAND** are brass. **BRASS OIL CUPS** on **SPLIT BABBITTED SHAFT BOXES, MACHINE CUT GEAR** and **RAWHIDE PINION,** properly guarded, insure durability and quiet operation. **CAST IRON CONNECTING RODS** between Crosshead and Crank Pins. **CROSSHEAD** is kept in alignment by two Steel Guide Rods, thus avoiding side strain on the Piston Rod. **SUCTION** is for ¾-inch iron pipe, and has a Galvanized Union Connection. **DISCHARGE** is for ½-inch iron pipe, and has a Galvanized Union Connection. **VACUUM CHAMBER,** which materially assists pump in drawing water, is attached to the suction connection of the pump. **BRASS VERTICAL CHECK VALVE,** of special construction, is on the discharge line. **BRASS FOOT VALVE,** with rubber faced Poppet, is furnished for the lower end of suction pipe, and should always be used. **LEATHER BELT** is high-grade, waterproof, pre-stretched, especially made for this outfit.

MOTOR

ELECTRIC MOTOR is for either Alternating or Direct Current, depending upon local electrical conditions. We furnish only high-grade motors, suitable for **CONTINUOUS SERVICE.** In ordering, give definite information as to available current.

AUTOMATIC ELECTRIC SWITCH

AUTOMATIC ELECTRIC SWITCH is simple, serviceable and reliable. Usually adjusted to start Motor at minimum pressure of 20 pounds, and to stop at maximum pressure of approximately 45 pounds. This means that the supply of water is maintained automatically without personal attention, except an occasional oiling at necessary points.

PRESSURE TANK

VERTICAL PRESSURE TANK is tested at 125 pounds air pressure, and is suitable for 85 pounds working pressure. We advise the use of 120 gallon tank, though smaller tanks may be used. The advantage of the larger tanks is that they hold a greater reserve supply of water under pressure, and the Motor is started and stopped less frequently.

BRASS RELIEF VALVE is ¾-inch, set to relieve at 70 pounds, and is a valuable safeguard against excessive pressure injuring tank or connections.

GATE VALVE, GAUGES, BIBB, and **STOP AND WASTE COCK,** are high-grade fittings, and should be arranged in installation as shown in the illustration on following page. Pipe and fittings shown in the illustration are not included in the price.

ADDITION TO AIR SUPPLY in Pressure Tank is provided for by the Air Cock at the top of the Vacuum Chamber. By opening this Air Cock wide, an initial air pressure of 10 pounds or more, can be pumped into the Pressure Tank.

SEE FOLLOWING PAGE FOR ILLUSTRATION AND PRICES.

McDONALD WATER SUPPLY SYSTEMS

WITH AUTOMATIC ELECTRIC DOUBLE ACTING FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

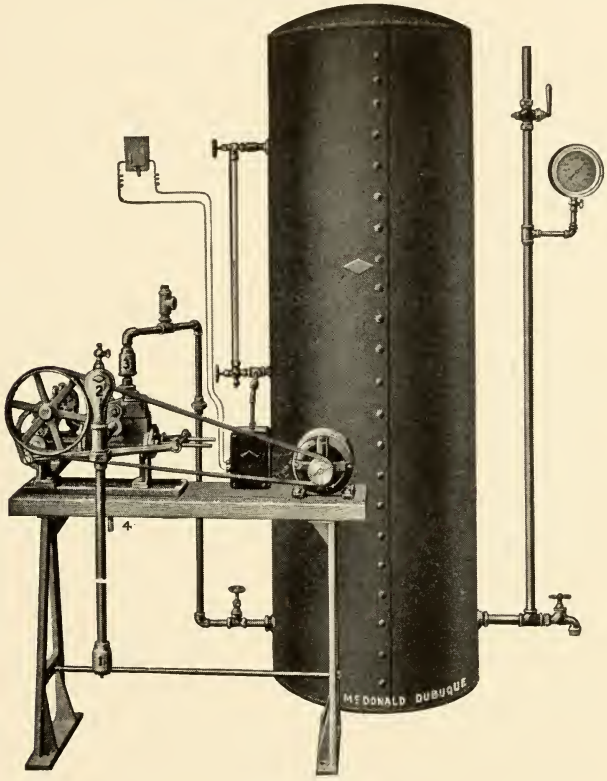


Plate E5831

Complete as shown, except pipe and pipe fittings, consists of the following:

1 McDonald Automatic Electric Pump with Motor and Automatic Switch mounted on a stand; with Vacuum Chamber, Brass Foot Valve and Brass Vertical Check Valve, and Union Connections on Pump.

1 Vertical Pressure Tank.

1 each, Water Gauge, Pressure Gauge, Gate Valve, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb which also serves as a drain cock.

Size Tank.....inches	16x60	18x60	20x60	24x60
Capacity of Tank.....gallons	52	66	83	120
No. 1. A. C. Single Phase 60 cycle, 110–220 volt.....	127.00	135.00	141.00	154.00
No. 2. Do, 25, 30, 40, 50, 125 or 133 cycle....	137.00	145.00	151.00	164.00
No. 3. D. C. Motor, 110 or 220 volt.....	127.00	135.00	141.00	154.00
No. 4. D. C. Motor, 30–60 volt.....	130.00	138.00	144.00	157.00
Add for Galvanized Tank in Place of Black....	14.00	17.00	19.00	.....

In ordering, specify Size of Tank, also the kind of Motor.

See preceding page for description.

McDONALD WATER SUPPLY SYSTEMS

AUTOMATIC ELECTRIC DOUBLE ACTING FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

PLATE E5851

On the following page is shown a McDonald Water Supply System with an Automatically Controlled Motor, Double Acting Power Force Pump, and Vertical Pressure Tank, suitable for supplying water under pressure to residences, small apartment buildings, etc. It is complete as shown, except pipe and pipe fittings, which are governed by the location of the Pump, Tank, Cistern, etc. The Pump has a **CAPACITY OF ABOUT 180 GALLONS PER HOUR,** and is practically **NOISELESS IN OPERATION.**

Pump, Electric Motor, and Automatic Control Switch are all mounted on a 2-inch plank, supported by cast iron brackets.

PUMP

BRASS LINED CYLINDER is cast integral with the Valve Chambers, with the Valves clustered above it, so that the pump cannot lose its priming. The **VALVES** are Cast Brass, ground to fit on Cast **BRASS SEATS. PISTON ROD** and **PACKING GLAND** are brass. **BRASS OIL CUPS** on **SPLIT BABBITTED SHAFT BOXES. MACHINE CUT GEAR** and **RAWHIDE PINION,** properly guarded, insure durability and quiet operation. **CAST IRON CONNECTING RODS** between Crosshead and Crank Pins. **CROSSHEAD** is kept in alignment by two Steel Guide Rods, thus avoiding side strain on the Piston Rod. **SUCTION** is for ¾-inch iron pipe, and has a Galvanized Union Connection. **DISCHARGE** is for ½-inch iron pipe, and has a Galvanized Union Connection. **VACUUM CHAMBER,** which materially assists pump in drawing water, is attached to the suction connection of the pump. **BRASS VERTICAL CHECK VALVE,** of special construction, is on the discharge line. **BRASS FOOT VALVE,** with rubber faced Poppet, is furnished for the lower end of suction pipe, and should always be used. **LEATHER BELT** is high-grade, waterproof, pre-stretched, especially made for this outfit.

MOTOR

ELECTRIC MOTOR is for either Alternating or Direct Current, depending upon local electrical conditions. We furnish only high-grade motors, suitable for **CONTINUOUS SERVICE.** In ordering, give definite information as to available current. .

AUTOMATIC ELECTRIC SWITCH

AUTOMATIC ELECTRIC SWITCH is simple, serviceable, and reliable. Usually adjusted to start Motor at minimum pressure of 20 pounds, and to stop at maximum pressure of approximately 45 pounds. This means that the supply of water is maintained automatically without personal attention, except an occasional oiling at necessary points.

PRESSURE TANK

VERTICAL PRESSURE TANK is tested at 125 pounds air pressure, and is suitable for 85 pounds working pressure. We advise the use of 120-gallon tank, though smaller tanks may be used. The advantage of the larger tanks is that they hold a greater reserve supply of water under pressure, and the Motor is started and stopped less frequently.

BRASS RELIEF VALVE is ¾-inch, set to relieve at 70 pounds, and is a valuable safeguard against excessive pressure injuring tank or connections.

GATE VALVE, GAUGES, BIBB, and **STOP AND WASTE COCK,** are high-grade fittings, and should be arranged in installation as shown in the illustration on following page. Pipe and fittings shown in the illustration are not included in the price.

ADDITION TO AIR SUPPLY in Pressure Tank is provided for by the Air Cock at the top of the Vacuum Chamber. By opening this Air Cock wide, an initial air pressure of 10 pounds or more can be pumped into the Pressure Tank.

SEE FOLLOWING PAGE FOR ILLUSTRATION AND PRICES.

McDONALD WATER SUPPLY SYSTEMS

WITH AUTOMATIC ELECTRIC DOUBLE ACTING FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

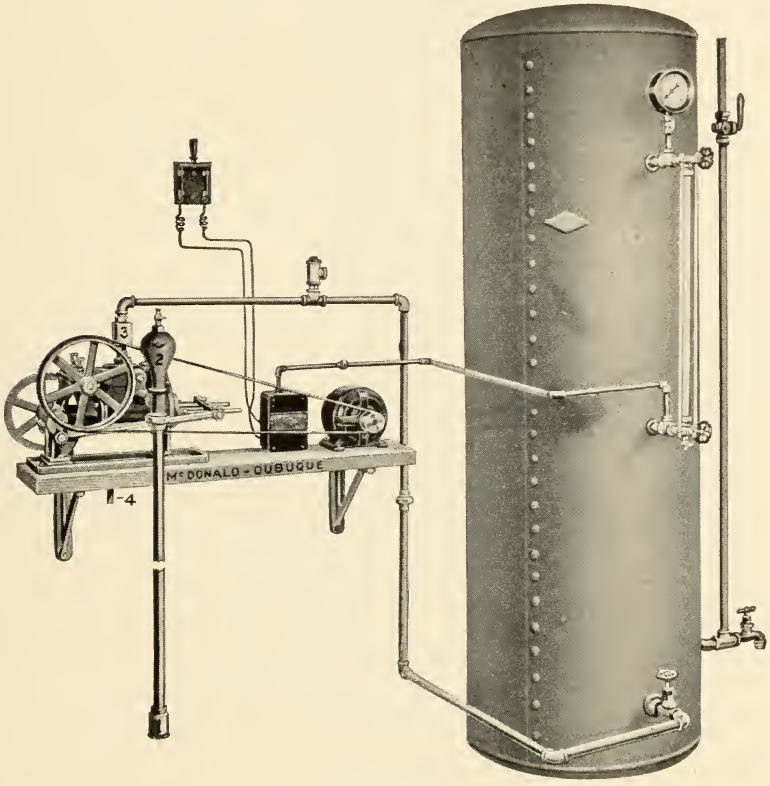


Plate E5851

Complete as shown, except pipe and pipe fittings, consists of the following:

1 McDonald Automatic Electric Pump with Motor and Automatic Switch mounted on Brackets; with Vacuum Chamber, Brass Foot Valve and Brass Vertical Check Valve, and Union Connections on Pump.

1 Vertical Pressure Tank.

1 each, Water Gauge, Pressure Gauge, Gate Valve, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb which also serves as a drain cock.

Size Tank.....inches	16x60	18x60	20x60	24x60
Capacity of Tank.....gallons	52	66	83	120
No. 1. A. C. Single Phase 60 cycle, 110–220 volt.....	**127.00**	**135.00**	**141.00**	**154.00**
No. 2. Do, 25, 30, 40, 50, 125 or 133 cycle....	**137.00**	**145.00**	**151.00**	**164.00**
No. 3. D. C. Motor, 110 or 220 volt.....	**127.00**	**135.00**	**141.00**	**154.00**
No. 4. D. C. Motor, 30–60 volt.....	**130.00**	**138.00**	**144.00**	**157.00**
Add for Galvanized Tank in Place of Black....	**14.00**	**17.00**	**19.00**	.....

In ordering, specify Size of Tank, also the kind of Motor.

See preceding page for description.

McDONALD WATER SUPPLY SYSTEMS

AUTOMATIC ELECTRIC DOUBLE-ACTING FORCE PUMPS

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

PLATE E5871

On the following page is shown a McDonald Water Supply System with an Automatically Controlled Motor, Double-acting Power Force Pump and Vertical Pressure Tank, suitable for supplying water under pressure to residences, small apartment buildings, etc. It is complete as shown, the entire outfit of Pump, Motor and Tank being mounted on one cast iron bed-plate, making an exceedingly compact and well arranged outfit. All necessary Gauges, Fittings, etc., are supplied, as well as all piping and connections between Pump and Tank. The Pump has a **CAPACITY OF ABOUT 180 GALLONS PER HOUR,** and is very quiet in operation. **CAN BE OPERATED FROM ANY ORDINARY LIGHTING SOCKET.**

PUMP

THE CYLINDER AND VALVE CHAMBER are cast integral with Valves arranged above the Cylinder so that Pump will not lose its priming. **VALVES** are of cast brass, ground to cast brass seats and are easily accessible by unscrewing Valve Cover. **PISTON ROD AND PACKING GLAND** are of brass, the former being fitted with double cupped leathers of superior quality. **BEARINGS** are babbitted, with removable caps. **CROSSHEAD** is of cast iron, operating on two steel guide rods, in conjunction with cast iron Connecting Rods. **GEARING** is all machine cut, and Rawhide Pinion insures quiet operation. **SUCTION** is for ¾-inch iron pipe and **DISCHARGE** is for ½-inch iron pipe, both being fitted with a Galvanized Union Connection. **BRASS VERTICAL CHECK VALVE** on discharge line and **BRASS FOOT VALVE,** both with rubber faced Poppets, are supplied, and should always be used. **LEATHER BELT** is high-grade, waterproof, and pre-stretched. An Idler Pulley is arranged on Motor Bracket, which may be used for taking up any slack in belt.

MOTOR

ELECTRIC MOTOR is for either Alternating or Direct Current, depending upon local electrical conditions. Motors are high-grade, suitable for **CONTINUOUS SERVICE.** In ordering, give definite information as to available current.

AUTOMATIC ELECTRIC SWITCH

AUTOMATIC ELECTRIC SWITCH is simple, serviceable, and reliable. Usually adjusted to start motor at a pressure of approximately 20 pounds, and to stop at approximately 45 pounds. This means that the supply of water is maintained automatically without personal attention except an occasional oiling of pump or motor.

PRESSURE TANK

VERTICAL PRESSURE TANK for Plate E5871 is furnished in several sizes. The larger tanks are an advantage, in that they hold a greater reserve supply of water under pressure, so that the motor is started and stopped less frequently.

BRASS RELIEF VALVE is ¾ inch set to relieve at 70 pounds, and is a valuable safeguard against excessive pressure injuring tank or connections.

GATE VALVE, GAUGES, BIBB and **STOP AND WASTE COCK,** are high-grade fittings.

ADDITION TO AIR SUPPLY in Pressure Tank is provided for by the Air Cock, at the top of the Vacuum Chamber. By opening this Air Cock wide, an initial air pressure of 10 pounds or more can be pumped into the Pressure Tank.

SEE FOLLOWING PAGE FOR ILLUSTRATION AND PRICES

McDONALD WATER SUPPLY SYSTEMS

WITH AUTOMATIC ELECTRIC DOUBLE-ACTING FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

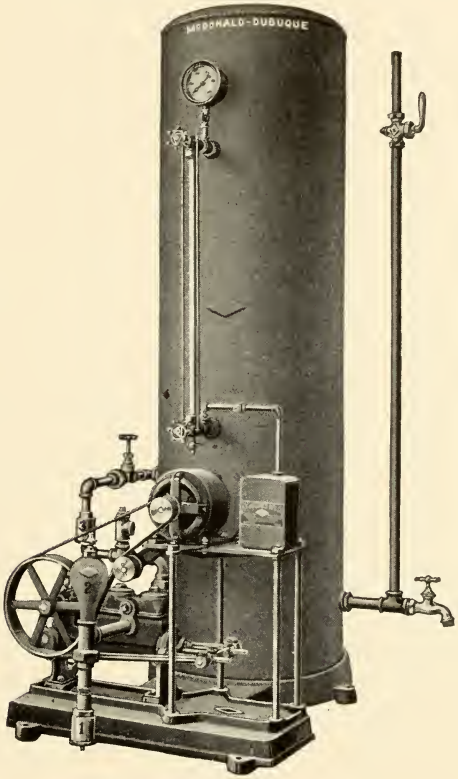


Plate E5871

Complete as shown, including all pipe and fittings between Pump and Tank, but not including pipe and fittings from Tank to house fixtures, except Hose Bibb and Stop and Waste Cock, consists of the following:

1 McDonald Automatic Electric Pump, with Motor and Automatic Switch, Brass Foot Valve, and Brass Vertical Check Valve, and Union Connections on Pump.

1 Vertical Pressure Tank.

1 each, Water Gauge, Pressure Gauge, Gate Valve, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb, which also serves as a drain cock.

1 Combined cast iron Pump and Tank Base, with necessary piping and fittings to connect pump to tank.

Size of Tank .....inches	16x60	18x60	20x60	24x60
Capacity of Tank .....gallons	52	66	83	120
No. 1. A. C. Single-phase 60-cycle, 110–220-volt	**149.00**	**157.00**	**163.00**	**176.00**
No. 2. Do, 25, 30, 40, 50, 125 or 133-cycle....	**159.00**	**167.00**	**173.00**	**186.00**
No. 3. D. C. Motor, 110–220-volt.....	**149.00**	**157.00**	**163.00**	**176.00**
No. 4. D. C. Motor, 30–60-volt.....	**152.00**	**160.00**	**166.00**	**179.00**
Add for Galvanized Tank in Place of Black....	**14.00**	**17.00**	**19.00**	.....

In ordering, specify size of Tank, also kind of motor, and whether for 110 or 220-volt current, as motors are not interchangeable. See preceding page for description.

McDONALD WATER SUPPLY SYSTEMS

AUTOMATIC ELECTRIC DOUBLE-ACTING FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

WITH SPECIAL ATTACHMENT FOR DRAWING FRESH COOL WATER DIRECT FROM THE WELL WITHOUT PASSING THROUGH TANK.

PLATE E5891

On the following page is shown a McDonald Water Supply System, with an Automatically Controlled Motor, Double-acting Power Force Pump, and Vertical Pressure Tank, suitable for supplying water under pressure to residences, small buildings, etc. It is complete as shown, except pipe and pipe fittings, which are governed by the location of the Pump, Tank, Well, etc. Necessary fittings for fresh water attachment included. The Pump has a **CAPACITY OF ABOUT 180 GALLONS PER HOUR**, and is practically **NOISELESS IN OPERATION, CAN BE OPERATED FROM ANY ORDINARY LIGHTING SOCKET.**

PUMP

The Cylinder and Valve Chamber are cast integral, with Valves arranged above the Cylinder, so that Pump will not lose its priming. **VALVES** are of cast brass, ground to cast brass seats, and are accessible by unscrewing Valve Cover. **PISTON ROD AND PACKING GLAND** are of brass, the plunger being fitted with double-cupped leathers of superior quality. **BEARINGS** are babbitted, with removable caps. **CROSSHEAD** is of cast iron, operating on two steel guide rods, in conjunction with cast iron Connecting Rods. **GEARING** is all machine cut, and Rawhide Pinion insures quiet operation. **SUCTION** is for ¾ inch iron pipe, and **DISCHARGE** is for 1½ inch iron pipe, both being fitted with a Galvanized Union Connection. **BRASS VERTICAL CHECK VALVES** on discharge line, and **BRASS FOOT VALVE,** all with rubber faced Poppets, are supplied, and should be installed as shown in the illustration. **LEATHER BELT** is high-grade, waterproof, pre-stretched, especially made for this outfit.

MOTOR

ELECTRIC MOTOR is for either Alternating or Direct Current, depending upon local electrical conditions. Motors are high-grade, suitable for **CONTINUOUS SERVICE.** In ordering, give definite information as to available current.

AUTOMATIC ELECTRIC SWITCH

AUTOMATIC ELECTRIC SWITCH, is simple, serviceable and reliable. Usually adjusted to start motor at a pressure of approximately 20 pounds, and to stop at approximately 45 pounds. This means that the supply of water is maintained automatically without personal attention, except an occasional oiling of pump or motor.

PRESSURE TANK

VERTICAL PRESSURE TANK is tested at 125 pounds air pressure, and is suitable for 85 pounds working pressure. We advise the use of 120-gallon tank, though smaller tanks may be used. The advantage of the larger tanks is that they hold a greater reserve supply of water under pressure, and the motor is started and stopped less frequently.

BRASS RELIEF VALVE is ¾-inch, set to relieve at 70 pounds, and is a valuable safeguard against excessive pressure injuring tank or connections. **GATE VALVE, GAUGES, BIBB** and **STOP AND WASTE COCK** are high-grade fittings, and should be arranged in installation as shown in the illustration on following page. Pipe and fittings shown in the illustration are not included in the price.

ADDITION TO AIR SUPPLY in Pressure Tank is provided for by the Air Cock at the top of the Vacuum Chamber No. 2. By opening this Air Cock wide, an initial air pressure of 10 pounds or more can be pumped into the Pressure Tank.

FRESH WATER CAN BE TAKEN DIRECT FROM THE WELL AND DISCHARGED DIRECT TO FAUCETS WHICH CAN BE CONNECTED TO THE FRESH WATER SERVICE PIPE SHOWN IN ILLUSTRATION, WITHOUT DRAWING ANY OF THE WATER STORED IN TANK. THIS IS A VERY DESIRABLE FEATURE WHERE DRINKING WATER IS AVAILABLE, NOT OVER 25 FEET BELOW PUMP.

SEE FOLLOWING PAGE FOR ILLUSTRATION AND PRICES.

McDONALD WATER SUPPLY SYSTEMS

WITH AUTOMATIC ELECTRIC DOUBLE-ACTING FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

WITH FRESH WATER ATTACHMENT

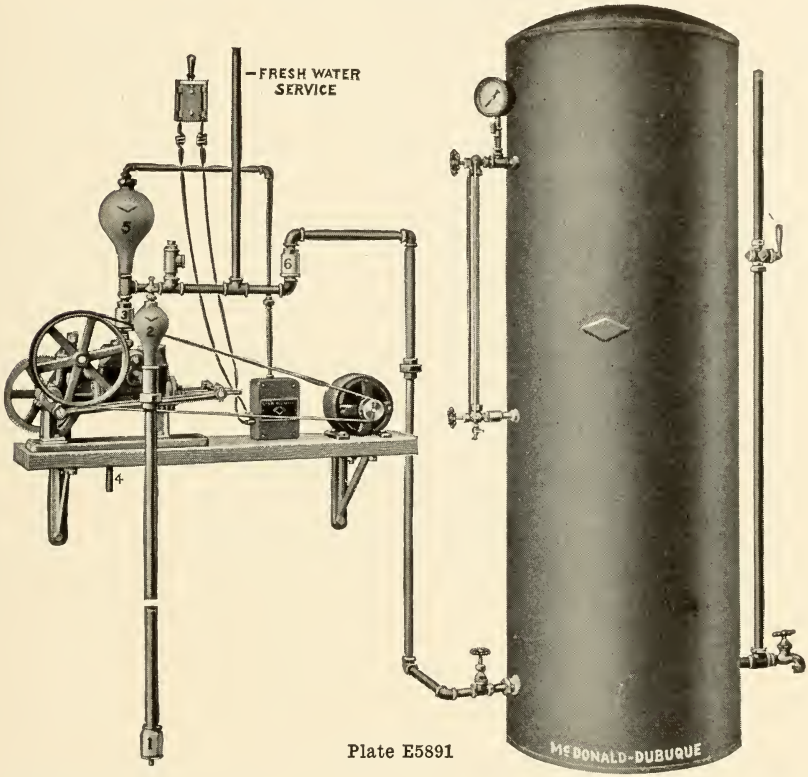


Plate E5891

Complete as shown, except pipe and fittings beyond Check Valve No. 6 consists of the following:

1 McDonald Automatic Electric Pump, with Motor and Automatic Switch, mounted on Brackets, Vacuum Chamber, Air Chamber, Brass Foot Valve, two Brass Vertical Check Valves, and Union Connections on Pump.

1 Vertical Pressure Tank.

1 each, Water Gauge, Pressure Gauge, Gate Valve, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb, which also serves as a drain cock. Necessary pipe and fittings between Pump and Check Valve No. 6.

Size of Tank.....inches	16x60	18x60	20x60	24x60
Capacity of Tank .....gallons	52	66	83	120
No. 1. A. C. Single-phase 60-cycle 110–220-volt	**134.00**	**142.00**	**148.00**	**161.00**
No. 2. Do, 25, 30, 40, 50, 125 or 133-cycle....	**144.00**	**152.00**	**158.00**	**171.00**
No. 3. D. C. Motor, 110–220-volt.....	**134.00**	**142.00**	**148.00**	**161.00**
No. 4. D. C. Motor, 30–60-volt.....	**137.00**	**145.00**	**151.00**	**164.00**
Add for Galvanized Tank.....	**14.00**	**17.00**	**19.00**	.....

In ordering, specify size of Tank, also kind of motor, and whether for 110 or 220-volt current, as motors are not interchangeable. See preceding page for description.

McDONALD WATER SUPPLY SYSTEMS

AUTOMATIC ELECTRIC DEEP WELL PUMP

FOR SUPPLYING WATER FROM WELLS FROM 25 TO 100 FEET DEEP

PLATE E5911

On the following page is illustrated a McDonald Water Supply System with an Automatically Controlled Motor, Power Working Head and Cylinder, and Vertical Pressure Tank, suitable for supplying water under pressure to residences, small apartment buildings, etc. It is complete as shown, except pipe and pipe fittings, which are governed by the location of the Pump, Tank, etc. The Working Head has a capacity varying from 120 to 180 gallons per hour, depending upon Cylinder used, and is exceedingly quiet in operation. **CAN BE OPERATED FROM ANY ORDINARY LIGHTING SOCKET.**

WORKING HEAD

WORKING HEAD has been carefully designed and is well made in every particular. **STANDARD** is of cast iron, bolted to Base, which contains suction and discharge pipe connections. **GEARING** is machine cut, with Rawhide Pinion, insuring quiet operation. **BEARINGS** are babbitted, with removable Caps. **CROSSHEAD** operates on two Steel Guide Rods. **PISTON ROD** and **PACKING GLAND** are of brass, the latter having bolt adjustment. Piston Rod is threaded at lower end for $\frac{3}{8}$ inch Rod Coupling. **AIR CHAMBER** of ample capacity on discharge line. **LEATHER BELT** is high-grade, waterproof, and pre-stretched. **IDLER PULLEY** on Standard always insures proper belt tension.

MOTOR

ELECTRIC MOTOR is for either Alternating or Direct Current, depending upon local electrical conditions. Motors are high-grade, suitable for **CONTINUOUS SERVICE.** In ordering, give definite information as to available current.

AUTOMATIC ELECTRIC SWITCH

AUTOMATIC ELECTRIC SWITCH is simple, serviceable, and reliable. Usually adjusted to start Motor at a pressure of approximately 20 pounds, and to stop at approximately 40 pounds. This means that the supply of water is maintained automatically without personal attention, except an occasional oiling of pump and Motor.

AIR COMPRESSOR

AIR COMPRESSOR, regularly furnished, is driven from Crosshead, and will maintain a positive air supply in tank at all times.

CYLINDER

CYLINDER is Brass Body with Flush Caps. Has two-leather all Brass Plunger, and McDonald Brass Patent Valve with rubber faced poppet.

PRESSURE TANK AND FITTINGS

VERTICAL PRESSURE TANK for Plate E5911 is furnished in various sizes as listed. The larger tanks are an advantage in that they hold a greater reserve supply of water under pressure, so that the Motor is started and stopped less frequently.

BRASS RELIEF VALVE is $\frac{3}{4}$ inch and is a valuable safeguard against excessive pressure injuring tank or connections.

GATE VALVE, CHECK VALVE, GAUGES, HOSE BIBB, and **STOP AND WASTE COCK,** are high-grade fittings.

BY MEANS OF THE McDONALD FRESH WATER ATTACHMENT, FRESH WATER MAY BE TAKEN DIRECT FROM THE WELL, AND DISCHARGED DIRECT TO FAUCETS WITHOUT DRAWING ANY OF THE WATER STORED IN TANK. THIS IS A VERY DESIRABLE FEATURE FOR DRINKING PURPOSES.

See following page for illustration and prices.

McDONALD WATER SUPPLY SYSTEMS

WITH AUTOMATIC ELECTRIC DEEP WELL WORKING HEAD

FOR SUPPLYING WATER FROM WELLS FROM 25 TO 100 FEET DEEP

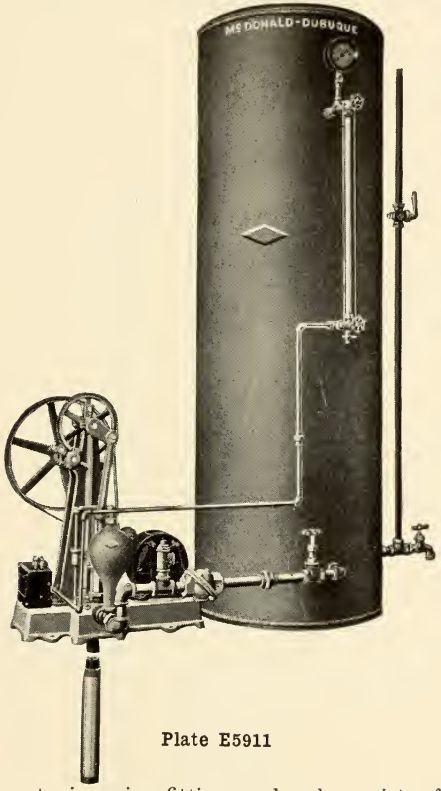


Plate E5911

Complete as shown, except pipe, pipe fittings and rod, consists of the following:

1 McDonald Automatic Electric Working Head with Motor and Automatic Switch on same Base, Cylinder, Air Chamber, and Union Connections on Discharge.

1 Vertical Pressure Tank.

1 each, Water Gauge, Pressure Gauge, Check Valve, Relief Valve, Gate Valve, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb.

The size of Cylinder to be used with the above depends upon the depth to water.

See preceding page for description.

Cylinder Size Inches	Gallons per hour	Depth to Water, Feet	Pressure in Tank, Pounds	Pipe Sizes, Inches Drop Pipe	Discharge	Well Rod Inches
1 5/8	120	100	40	1	3/4	3/8
1 3/4	140	75	40	1	3/4	3/8
2	180	40	40	1 1/4	3/4	3/8

Size of Tank.....inches	16x60	18x60	20x60	24x60
Capacity of Tank .....gallons	52	66	83	120
No. 1 A. C. Single Ph. 60 cyc, 110–220 volt...	**156.00**	**164.00**	**170.00**	**183.00**
No. 2 Do, 25, 30, 40, 50, 125, 133 cycle.....	**166.00**	**174.00**	**180.00**	**193.00**
No. 3 D. C. Motor, 110–220 volt.....	**156.00**	**164.00**	**170.00**	**183.00**
No. 4 D. C. Motor, 30–60 volt.....	**159.00**	**167.00**	**173.00**	**186.00**
Add for Galvanized Tank.....	**14.00**	**17.00**	**19.00**	.....

In ordering, specify size of Tank, and Cylinder, also kind and Voltage of Motor.

Extra for **McDONALD FRESH WATER ATTACHMENT**..... **7.00**

McDONALD WATER SUPPLY SYSTEMS

WITH HAND FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

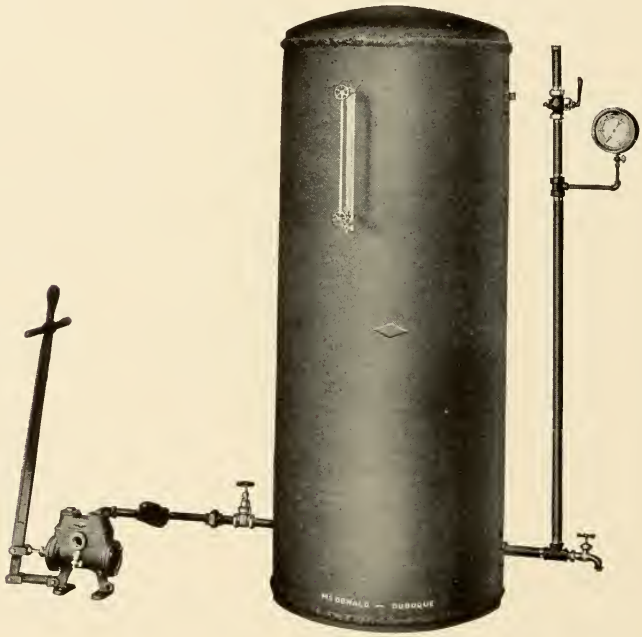


Plate E5921

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Vertical Pressure Tank.
1 2½-inch Brass Lined, Double-acting Force Pump with Intake Air Valve.
1 each, Special Horizontal Iron Check Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Price, with 30-inch by 6-foot Tank, 220 Gallons Capacity..... **86.00**

Capacity of the pump, about 300 gallons an hour, when operated 30 strokes per minute.

Suction of pump 1¼ inches, Discharge 1 inch.

The same pump and fixtures will work equally well on any size of tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH HAND FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

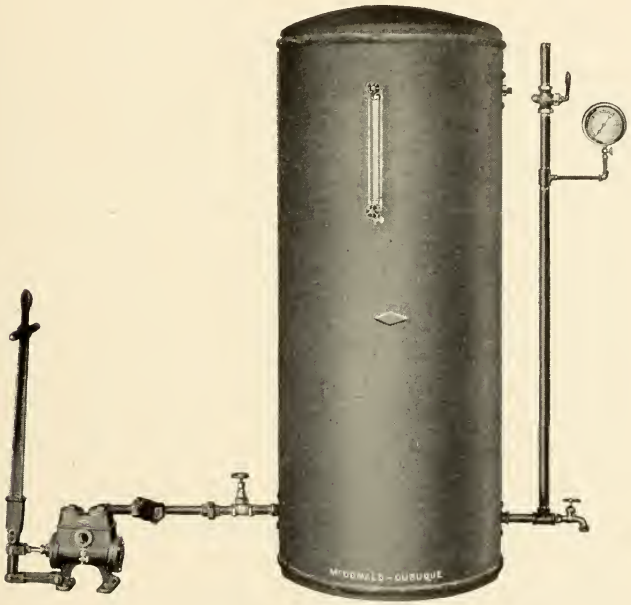


Plate E5931

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Vertical Pressure Tank.

1 2½-inch Brass Lined, Double-acting, Force Pump with Intake Air Valve and Socket Handle.

1 each, Special Horizontal Iron Check Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Price, with 30-inch by 72-inch Tank, 220 Gallons Capacity..... **86.50**

Capacity of pump about 300 gallons an hour, when operated 30 strokes per minute.

Suction of pump 1¼ inches, Discharge 1 inch.

The same pump and fixtures will work equally well on any size of tank, either vertical of horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH HAND FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

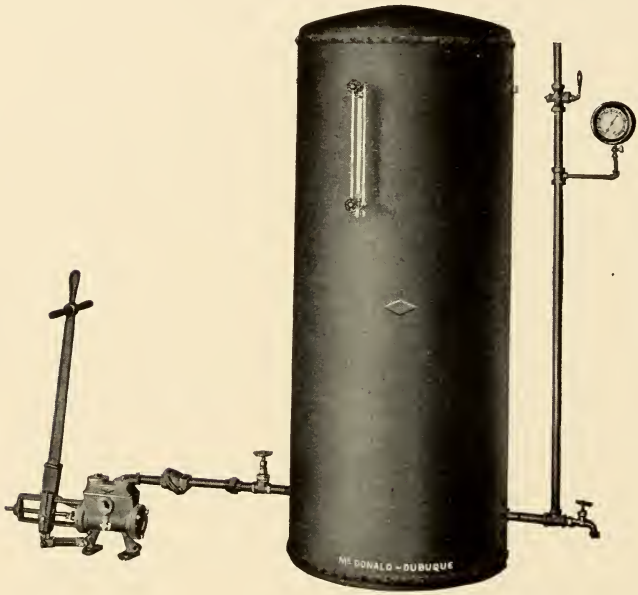


Plate E5941

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Vertical Pressure Tank.

1 2½-inch Brass Lined, Double-acting, Force Pump with Outrigger and Intake Air Valve.

1 each, Special Cast Iron Horizontal Check Valve, Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb which also serves as a drain cock.

Price, with 30-inch by 72-inch Tank, 220 Gallons Capacity..... **87.00**

Capacity of Pump about 300 gallons an hour, when operated 30 strokes per minute.

Suction of Pump 1¼ inches, Discharge 1 inch.

The same Pump and Fixtures will work equally well on any size Tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH HAND FORCE PUMP WITH AIR COMPRESSOR

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

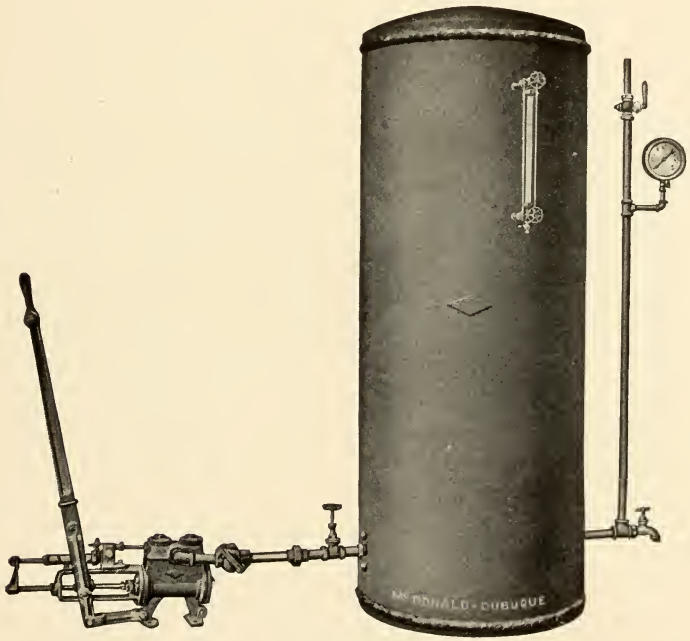


Plate E5951

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Vertical Pressure Tank.
1 2½-inch Brass Lined, Double Acting Force Pump with Air Compressor.
1 each, Special Cast Iron Horizontal Check Valve, Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb, which also serves as a drain cock.

Price, with 30-inch by 72-inch Tank, 220 Gallons Capacity..... **91.00**

Capacity of pump about 300 gallons an hour, when operated 30 strokes per minute.

Suction of pump 1¼-inch, Discharge 1-inch.

The same pump and fixtures will work equally well on any size tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH HAND FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS
NOT OVER 25 FEET DEEP

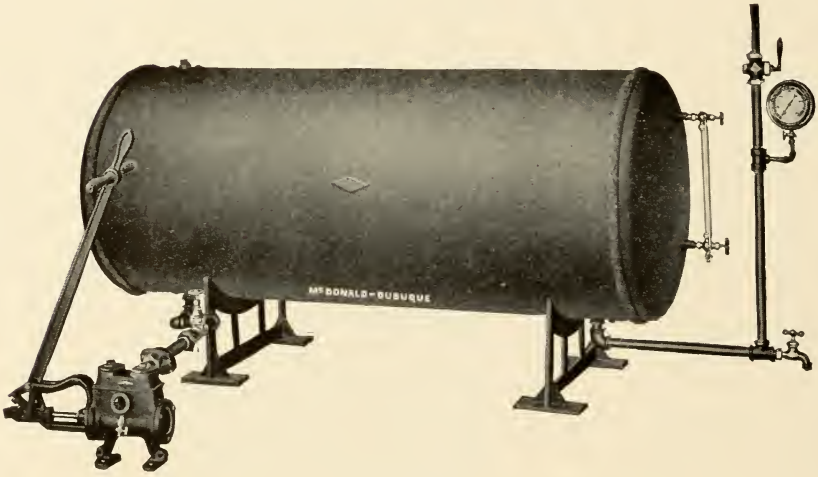


Plate E5961

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Stands for same.

1 3-inch Brass Lined, Double-Acting Force Pump, Rack and Pinion, with Intake Air Valve.

1 each, Special Cast Iron Horizontal Check Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Price, with 30-inch by 10-foot Tank, 365 Gallons Capacity..... **118.00**

Capacity of pump about 450 gallons an hour, when operated 30 strokes per minute.

Suction of pump 1¼-inch, Discharge 1-inch.

The same pump and fixtures will work equally well on any size of tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH POWER AND HAND FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

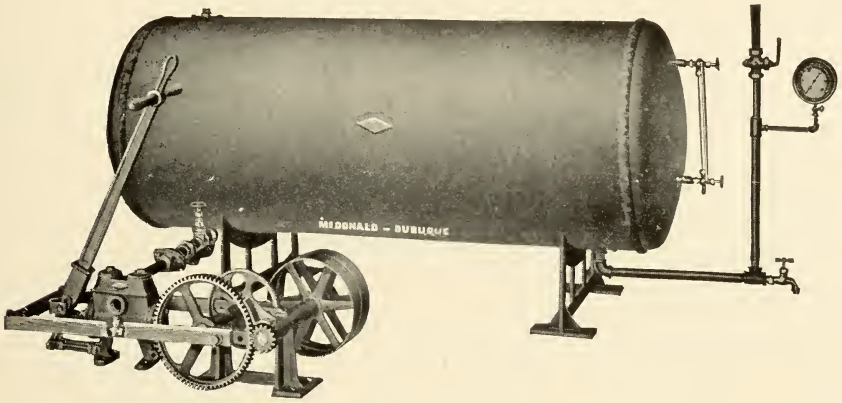


Plate E5971

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Stands for same.

1 3-inch Brass Lined, Double-Acting, Hand and Power Force Pump, mounted on a plank, with Handle, Pulleys, Machine Cut Gears and Intake Air Valve.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Price, with 36-inch by 8-foot Tank, 420 Gallons Capacity..... **148.00**

Capacity of pump about 550 gallons an hour when operated 40 strokes per minute.

Suction of pump 1¼ inches, Discharge 1-inch.

PUMP and **JACK** are strong enough to work against 50 pounds pressure, and one Horse Power will operate it to 70 pounds pressure, 40 strokes per minute. Back Geared 4⅘ to 1.

The same Pump and Jack and fixtures will work equally well on any size of tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH POWER AND HAND FORCE PUMP WITH AIR COMPRESSOR

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

Plate E5981

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Stands for same.

1 3-inch Brass Lined, Double-acting Power and Hand Pump with Air Compressor, and Machine Cut Gears, Back Geared 6 to 1. Pulleys are 12 inches in Diameter.

1 each Special Cast Iron Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Diamond Lever Handle Stop and Waste Cock and Compression Hose Bibb which also serves as a Drain Cock.

Price, with 36-inch by 8-foot Tank, 420 gallons capacity..... **161.00**

Capacity of Pump about 625 gallons an hour, when operated 45 strokes per minute.

Suction of Pump 1¼ inches, Discharge 1 inch.

This Pump is suitable for pressures up to 75 pounds, and a good 1½-H. P. Gasoline Engine will operate it successfully. If belted direct to a 1750 R. P. M. Electric Motor, we furnish the Pump with a Pulley 20 inches Diameter by 3½-inch Face, and recommend that not less than a 1-H. P. Motor be used, which will easily develop 50 pounds pressure in the tank.

The same Pump and Fixtures will work equally well on any size of Tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH POWER FORCE PUMP, BACK GEARED 6 TO 1

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

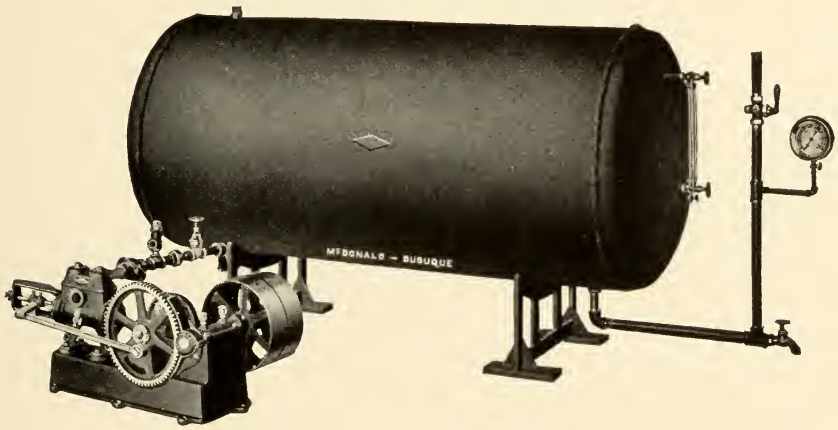


Plate E5991

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Stands for same.

1 3-inch Brass Lined, Double-acting, Power Force Pump with Machine Cut Gears, and Intake Air Valve; Back Geared, 6 to 1. Pulleys are 12 inches in diameter.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Price, with 36-inch by 8-foot Tank, 420 Gallons Capacity..... **160.00**

Capacity of Pump about 625 gallons an hour, when operated 45 strokes per minute.

Suction of Pump, 1¼ inches, Discharge 1 inch.

The same pump and fixtures will work equally well on any size of tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH POWER FORCE PUMP WITH AIR COMPRESSOR

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

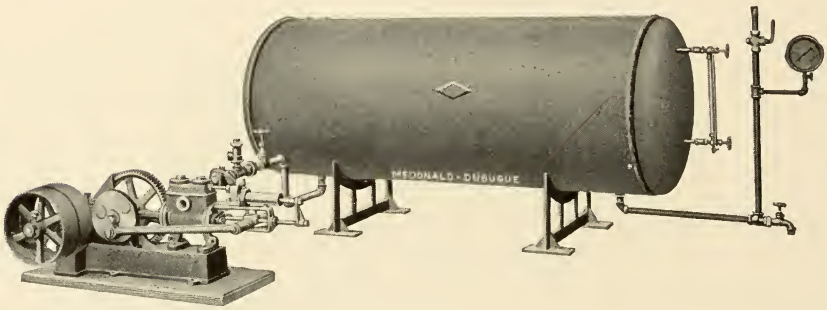


Plate E6001

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Stands for same.

1 3-inch Brass Lined Double Acting Power Pump with Air Compressor and Machine Cut Gears, Back Geared 6 to 1. Pulleys are 12 inches in diameter.

1 each Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Diamond Lever Handle Stop and Waste Cock, and Compression Hose Bibb which also serves as a Drain Cock.

Price, with 36-inch by 8-foot Tank, 420 Gallons Capacity..... **166.00**

This pump can be furnished with Handle for operation by hand also, but in this case the size of the Air Compressor is reduced to 1¼-inch diameter. Add to list for Handle for hand operation, 4.00.

Capacity of pump about 625 gallons an hour, when operated 45 strokes a minute.

Suction of pump is 1¼ inches, Discharge, 1 inch.

This Pump is suitable for working against pressures up to 75 pounds, and a good 1½-H. P. Gasoline Engine will operate it successfully. If belted direct to a 1750 R. P. M. Electric Motor, we furnish the Pump with a Pulley 20 inches Diameter by 3½-inch Face, and recommend that not less than a 1-H. P. Motor be used, which will easily develop 50 pounds pressure in the tank.

The same Pump and Fixtures will work equally well on any size of tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH HAND AND POWER FORCE PUMP, BACK GEARED 6 TO 1

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

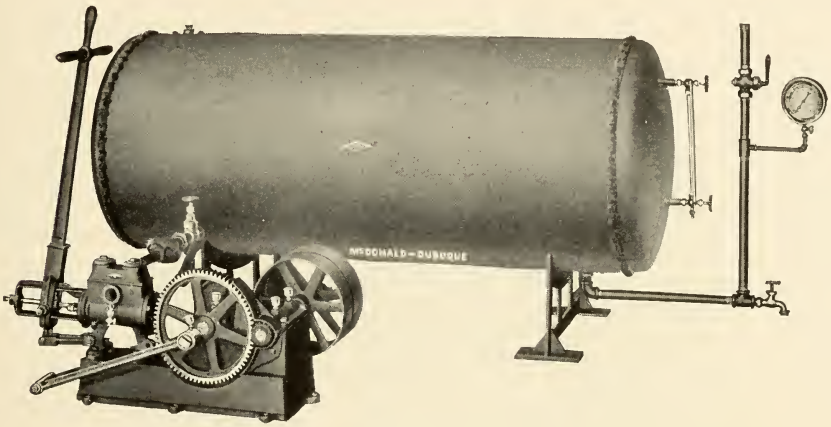


Plate E6011

Complete as shown, except pipe and pipe fittings consists of the following.

1 Horizontal Pressure Tank and Iron Stands for same.

1 3-inch Brass Lined, Double-Acting, Hand and Power Force Pump with Machine Cut Gears, Detachable Handle, and Intake Air Valve; Back Geared 6 to 1. Pulleys are 12 inches in diameter.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Bibb which also serves as a drain cock.

Price, with 36-inch by 8-foot Tank, 420 Gallons Capacity..... **164.00**

Capacity of pump, about 625 gallons an hour when operated 45 strokes per minute.

Suction of pump, 1¼ inches, discharge, 1 inch.

This Pump is capable of working against a pressure of 75 pounds. The **HANDLE** and **SOCKET** for **HAND OPERATION** is a desirable feature, as system can be operated by hand if power should not be available.

The same pump and fixtures will work equally well on any size of tank either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH GASOLINE ENGINE AND POWER AND HAND FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

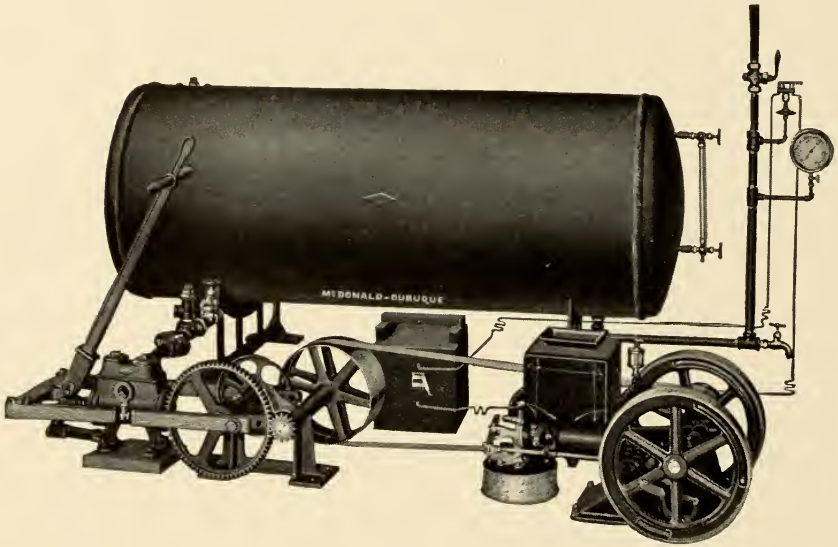


Plate E6021

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.
1 3-inch Brass Lined, Double-Acting, Hand and Power Force Pump, with Intake Air Valve, mounted on a plank, with Pulleys and Handle. Machine Cut Gears.
1 1½-H. P. Gasoline Engine, with 12 feet of good 2½-inch Leather Belt.
1 Automatic Gas Engine Stop to cut batteries off from engine at desired pressure.
1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Price, with 36-inch by 8-foot Tank, 420 Gallons Capacity **210.00**

If Automatic Gas Engine Stop is not wanted, deduct from list 8.00.
Capacity of pump 550 gallons an hour when operated 40 strokes per minute.
Suction of pump 1¼ inches, discharge 1 inch.
The same pump and fixtures will work equally well on any size of tank, either vertical or horizontal.

McDONALD WATER SUPPLY SYSTEMS

WITH ELECTRIC MOTOR AND HAND AND POWER FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

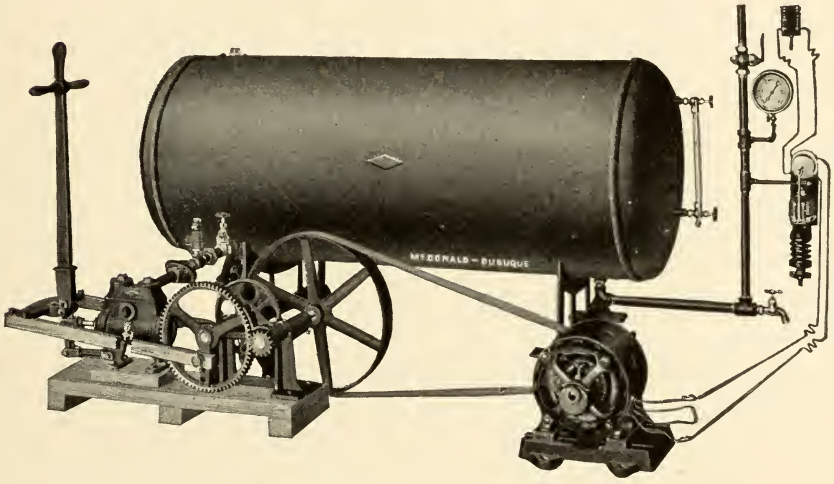


Plate E6031

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.
1 2½ or 3-inch Brass Lined Horizontal Double Acting Hand and Power Pump, with Detachable Handle and Intake Air Valve. Machine Cut Gears.
1 ½ or ¾ H. P. Electric Motor, as listed below, with 12 feet of Good 3-inch Leather Belt.
1 Automatic Switch to start and stop motor.
1 each, "Special" Cast Iron Horizontal Check Valve, "Diamond" Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle "Diamond" Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Size Pump Inches	Size Tank	Capacity of Tank, Gallons	Alternating Current Motor ½ H. P.	Alternating Current Motor ¾ H. P.	Direct Current Motor ½ H. P.	Direct Current Motor ¾ H. P.
2½	36 inches by 8 foot	420	244.00	262.00	244.00	258.00
3	36 " " 8 "	420	.....	263.00	.....	259.00

If without Automatic Switch, deduct from list 18.00.

Capacity approximately 500 gallons per hour for the 2½-inch pump and 720 gallons for the 3-inch pump.

Suction of pump 1¼ inches, discharge 1 inch.

½ H. P. Motor will operate the 2½ inch pump to 50 pounds pressure. ¾ H. P. Motor will operate the 2½-inch pump to 100 pounds pressure and the 3-inch pump to 70 pounds pressure. The same sizes of pumps, motors and fixtures will work equally well on any size of tank, either vertical or horizontal.

In ordering, always state Size of Pump, Tank, and Size and Kind of Motor wanted.

McDONALD WATER SUPPLY SYSTEMS

WITH GASOLINE ENGINE AND POWER FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

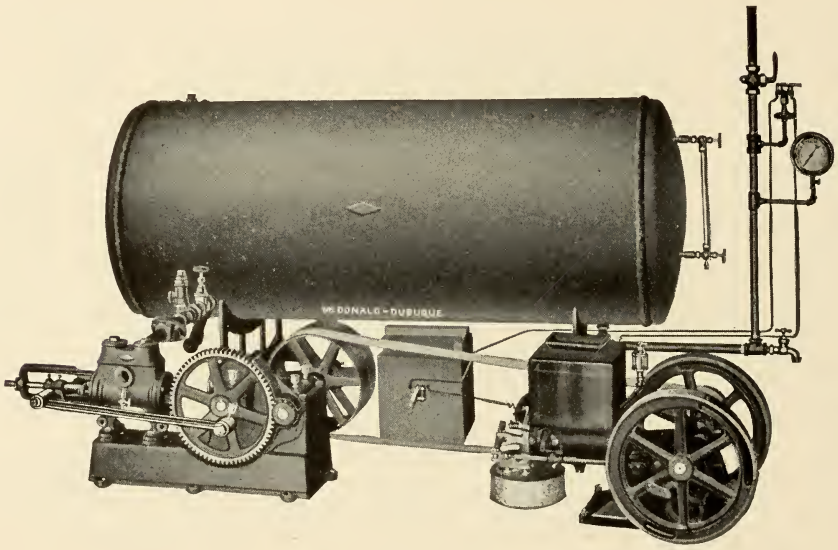


Plate E6041

Complete as shown, except pipe and pipe fittings consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.
1 3-inch Brass Lined Double-acting Power Force Pump, with Intake Air Valve, Machine Cut Gears. Back Geared 6 to 1.
1 1½-H. P. Gasoline Engine, high grade, with 12 feet of 3-inch good Leather Belt.
1 Automatic Gasoline Engine Stop or Circuit Breaker.
1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Bibb which also serves as a drain cock.

Price, with 36-inch by 8-foot Tank, 420 gallons capacity..... **246.00**

HANDLE, HANDLE SOCKET AND FULCRUM FOR OPERATION BY HAND, add to list 4.00.

If without Automatic Gasoline Engine Stop, deduct from list 8.00.

Capacity of Pump 575 gallons per hour. Suction of Pump 1¼ inches, Discharge 1 inch.

The same Pump, Engine and Fixtures will work equally well on any size of Tank, either vertical or horizontal.

In ordering, always state Size of Tank wanted.

McDONALD WATER SUPPLY SYSTEMS

WITH DIRECT CONNECTED GASOLINE ENGINE AND FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

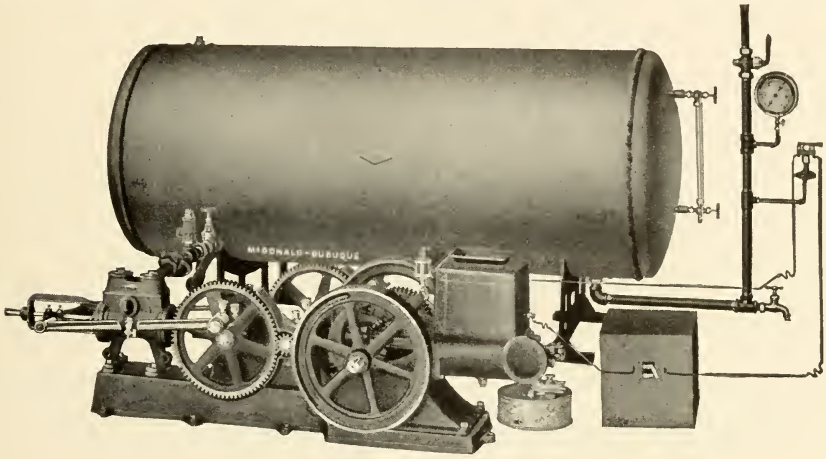


Plate E6051

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 1½-H. P. Gasoline Engine connected direct to a 3-inch or 3½-inch Brass-Lined Double-Acting Force Pump with Intake Air Valve and Machine Cut Gears.

1 Automatic Gasoline Engine Stop or Circuit Breaker.

1 each, Special Horizontal Cast Iron Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Bibb which also serves as a drain cock.

	Diameter of Cylinder 3-inch	3½-inch
Price, with 36-inch by 8-foot Tank, 420 Gallons Capacity.....	266.00	272.00

HANDLE, HANDLE SOCKET AND FULCRUM for operation by hand, add to list, either size of pump, 4.00.

If without Automatic Gasoline Engine Stop, deduct from list, 8.00.

Capacity of 3-inch pump 720 gallons per hour and 3½-inch pump has capacity of 960 gallons per hour. Suction of 3-inch pump 1¼-inch, discharge 1-inch. Suction of 3½-inch pump 1½-inch, discharge 1¼-inch.

The 3-inch Pump will easily develop 75 pounds pressure and the 3½-inch Pump 60 pounds pressure. The same Engine and Pump and Fixtures will work equally well on any size of Tank, either Vertical or Horizontal.

In ordering, be sure to state Size of Pump and Tank wanted.

This is our best gasoline driven water supply system for use on shallow wells.

McDONALD WATER SUPPLY SYSTEMS

WITH ELECTRIC MOTOR BELTED TO BRASS LINED POWER FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

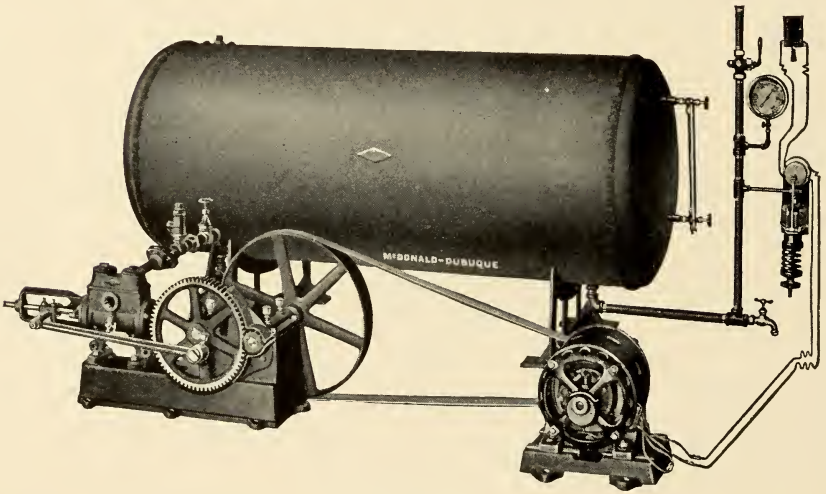


Plate E6061

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Tank and Iron Stands for same; sizes listed below.
1 2½-inch or 3-inch Brass Lined Double Acting Force Pump with Intake Air Valve and Machine Cut Gears.
1 ¾-H. P. Electric Motor, as listed below, with 16 feet of good 3-inch Leather Belt.
1 Automatic Switch to start and stop motor.
1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb, which also serves as a drain cock.

Size of Pump Inches	Size of Tank	Capacity of Tank, Gallons	¾-H. P. Alternating Current Motor	¾-H. P. Direct Current Motor
2½	36 inch by 8 foot	420	**276.00**	**272.00**
3	36 inch by 8 foot	420	**277.00**	**273.00**

If without Automatic Switch deduct from lists above 18.00.
HANDLE and **FULCRUM** for operation by hand, add to list above, 4.00.
Capacity of 2½-inch pump 420 gallons per hour.
Capacity of 3-inch pump 600 gallons per hour.
Suction of pumps, 1¼ inches, discharge 1 inch.
The same Motor, Pump and Fixtures will work equally well on any size of tank, either vertical or horizontal.
In ordering, be careful to state Size of Pump, Size of Tank, and the Kind and Size of Motor desired.

McDONALD WATER SUPPLY SYSTEMS

WITH ELECTRIC MOTOR CONNECTED DIRECT TO BRASS LINED FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

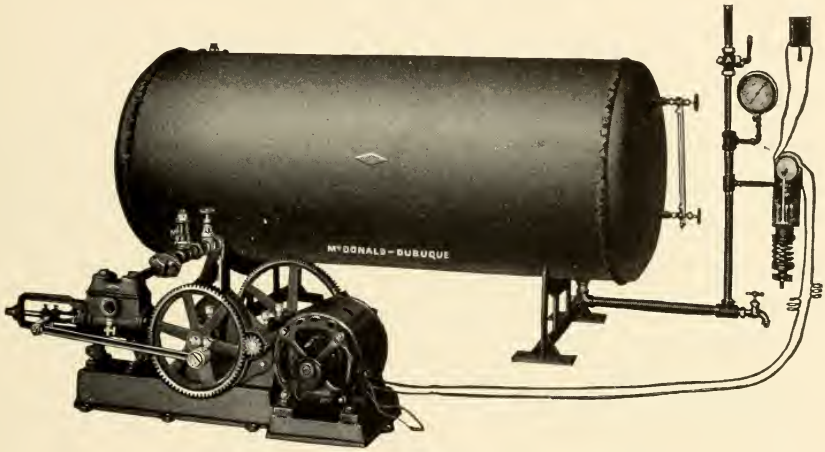


Plate E6071

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Electric Motor, Alternating or Direct Current, connected direct to a 2½-inch, 3-inch or 3½-inch Brass Lined Double-acting Horizontal Power Pump, with Machine Cut Gears, Raw Hide Pinion on Motor and Intake Air Valve.

1 Horizontal Pressure Tank and Iron Stands for same.

1 Automatic Switch for stopping and starting Motor at certain pressures.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Size Pump Inches	Size Tank	Capacity of Tank Gallons	Alternating Current Motor ½ H. P.	¾ H. P.	1 H. P.	Direct Current Motor ½ H. P.	¾ H. P.	1 H. P.
2½	36 inches by 6 feet	315	276.00	294.00	.....	276.00	286.00	.....
3	42 " " 8 "	575	.....	367.00	391.00	.....	361.00	378.00
3½	42 " " 10 "	720	.....	.....	444.00	.....	.....	431.00

If without Automatic Switch, deduct from lists above for ½ and ¾-H.P. Motor 18.00 and for 1 H. P. Motor 30.00.

For Handle, Handle Socket and Fulcrum for operation by hand, add to list 4.00.

Capacity of Pumps per hour: 2½-inch Pump, 500 gallons; 3-inch Pump, 720 gallons; 3½-inch Pump, 960 gallons.

Suction of 2½ and 3-inch Pumps, 1¼-inch, Discharge, 1-inch.

Suction of 3½-inch Pump, 1½-inch, Discharge, 1¼-inch.

Hand operated Switch not included in price. These Motors and Pumps will work equally well on any size of tank, either vertical or horizontal.

THIS IS OUR BEST ELECTRIC DRIVEN WATER SUPPLY SYSTEM FOR USE ON SHALLOW WELLS.

In ordering, specify Size of Pump, Size of Tank, and Size and Kind of Motor wanted.

McDONALD WATER SUPPLY SYSTEMS

WITH FIVE INCH DOUBLE ACTING POWER FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

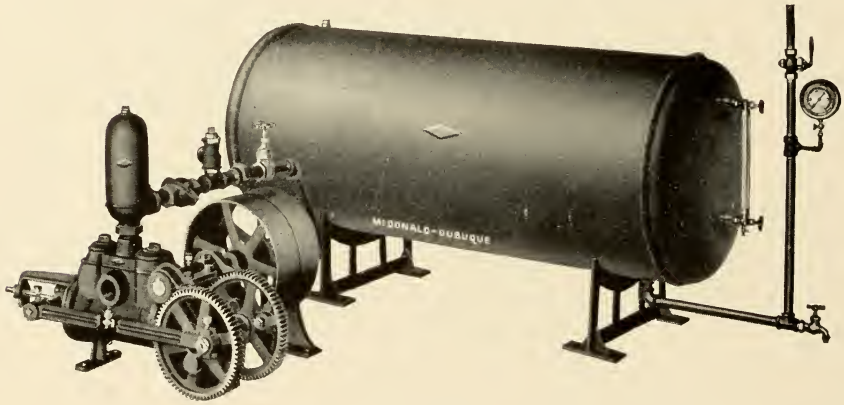


Plate E6081

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 5-inch Brass Lined, Horizontal Double Acting Power Force Pump with Machine Cut Gears, and Intake Air Valve; Back Geared 4 to 1. Suction, 2-inch; Discharge, 2-inch. Pulleys 16-inch diameter by 4½-inch face.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Pressure Gauge, Water Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Price, with 48-inch by 14-foot Tank, 1300 Gallons Capacity..... **375.00**

Capacity of pump about 1950 gallons an hour when operated 40 strokes per minute.

Suitable for pressures up to 60 pounds. Requires 4 Horse Power to operate.

The same pump and fixtures will work equally well on any size of tank, either vertical or horizontal.

In ordering, be sure and state size of Tank wanted.

McDONALD WATER SUPPLY SYSTEMS

WITH POWER WORKING HEAD, AIR COMPRESSOR ATTACHED

FOR SUPPLYING WATER FROM DEEP WELLS

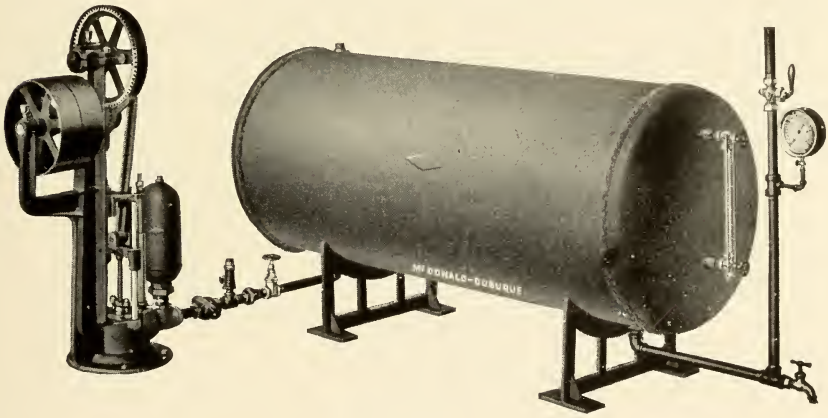


Plate E6091

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, 6-inch and 8-inch Stroke, Machine Cut Gears with Air Compressor for 3-inch well pipe and 2-inch discharge pipe. Pulleys 12-inch diameter. Back-geared 5½ to 1.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve. Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb, which also serves as a drain cock.

Price, with 42-inch by 10-foot Tank, 720 Gallons Capacity..... **265.00**

It will supply about 500 gallons per hour when used with a 2¾-inch cylinder from a well 100 feet deep when operated forty 8-inch strokes a minute, against a tank pressure of 45 pounds. It can be used with smaller cylinders in deeper wells or larger cylinders in shallower wells.

The same Working Head and fixtures will work equally well on other sizes of Tanks, either Horizontal or Vertical.

In ordering, be careful to state size of Tank wanted.

Above prices do not include the Well Pipe, Pump Rod or Cylinder suspended in the well.

McDONALD WATER SUPPLY SYSTEMS

WITH POWER WORKING HEAD, AIR COMPRESSOR ATTACHED

FOR SUPPLYING WATER FROM DEEP WELLS

Plate E6101

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, 6-inch and 8-inch Stroke, Machine Cut Gears, with Air Compressor, for 3-inch well pipe and 2-inch discharge pipe. Pulleys 12-inch diameter. Back geared 5½ to 1.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb which also serves as a drain cock.

Price, with 42-inch by 10-foot Tank, 720 Gallons Capacity..... **277.00**

WORKING HEAD is designed for fairly heavy duty, and having been thoroughly tested, is recommended for wells up to 200 feet deep with 2¾-inch cylinder, or with larger cylinders in shallower wells. It is sufficiently strong for this service, and can utilize 1½ Horse Power.

It will supply about 500 gallons an hour, when used with a 2¾-inch cylinder, from a well 135 feet deep, against 50 pounds pressure in the tank. It can be used with smaller cylinders in deeper wells or larger cylinders in shallower wells.

The same Working Head and fixtures will work equally well on any other sizes of Tanks, either Vertical or Horizontal.

In ordering, be sure to state the size of Tank wanted. Above prices do not include the Well Pipe, Pump Rod or Cylinder suspended in the well.

McDONALD WATER SUPPLY SYSTEMS

WITH GASOLINE ENGINE AND POWER WORKING HEAD AND AIR COMPRESSOR

FOR SUPPLYING WATER FROM DEEP WELLS

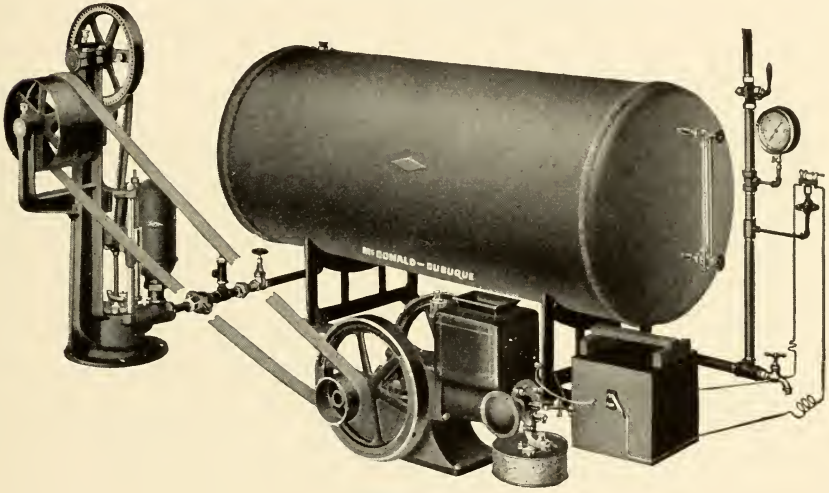


Plate E6111

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, 6-inch and 8-inch Stroke, Machine Cut Gears, with Air Compressor, for 3-inch well pipe and 2-inch discharge pipe. Pulleys, 12-inch diameter. Back geared 5½ to 1.

1 1½-H. P. Gasoline Engine, high-grade, with 12 feet of good 3-inch Leather Belt.

1 Automatic Gasoline Engine Stop or Circuit Breaker.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb, which also serves as a drain cock.

Price, with 42-inch by 10-foot Tank, 720 gallons capacity **327.00**

If without Gasoline Engine Stop, deduct from list, 8.00.

This Power Working Head and 1½-H. P. Engine are powerful enough to operate a 2¾-inch cylinder in a 100-foot well against a pressure of 45 pounds in the tank and will supply about 500 gallons an hour.

The same Working Head, Engine and Fixtures will work equally well with other sizes of Tanks, either Vertical or Horizontal.

In ordering, be careful to state size of Tank wanted. Above prices do not include Well Pipe, Pump Rod or Cylinder suspended in the well.

McDONALD WATER SUPPLY SYSTEMS

WITH GASOLINE ENGINE AND POWER WORKING HEAD WITH AIR COMPRESSOR

FOR SUPPLYING WATER FROM DEEP WELLS

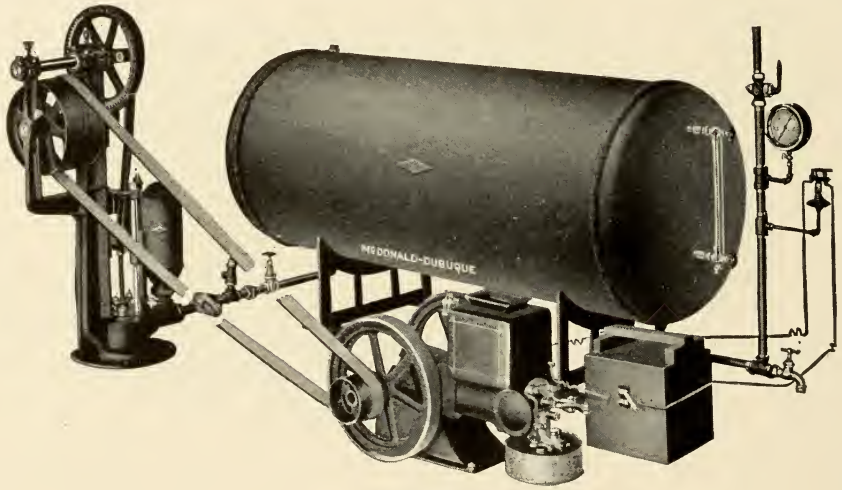


Plate E6121

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, 6-inch and 8-inch Stroke, Machine Cut Gears, with Air Compressor, for 3-inch well pipe and 2-inch discharge pipe. Pulleys, 12 inches in diameter. Back Geared 5½ to 1.

1 1½-H. P. Gasoline Engine, high-grade, with 12 feet of good 3-inch Leather Belt.

1 Automatic Gasoline Engine Stop or Circuit Breaker.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb, which also serves as a drain cock.

Price, with 42-inch by 10-foot Tank, 720 Gallons Capacity..... **339.00**

If without Gasoline Engine Stop, deduct from list 8.00.

WORKING HEAD is designed for fairly heavy duty, and having been thoroughly tested, is recommended for wells up to 200 feet deep with 2¾-inch cylinder, or deeper wells with smaller cylinders, or shallower wells with larger cylinders.

This Power Working Head and Gasoline Engine are powerful enough to operate a 2¾-inch Cylinder in a 135-foot well against 50 pounds pressure in Tank, supplying about 500 gallons an hour.

The same Working Head, Engine and Fixtures will work equally well on any size of tank, either vertical or horizontal.

In ordering, be careful to state the size of Tank wanted.

Above prices do not include Well Pipe, Pump Rod or Cylinder suspended in the well.

McDONALD WATER SUPPLY SYSTEMS

WITH ELECTRIC MOTOR AND DEEP WELL POWER WORKING HEAD AIR COMPRESSOR ATTACHED

FOR SUPPLYING WATER FROM DEEP WELLS

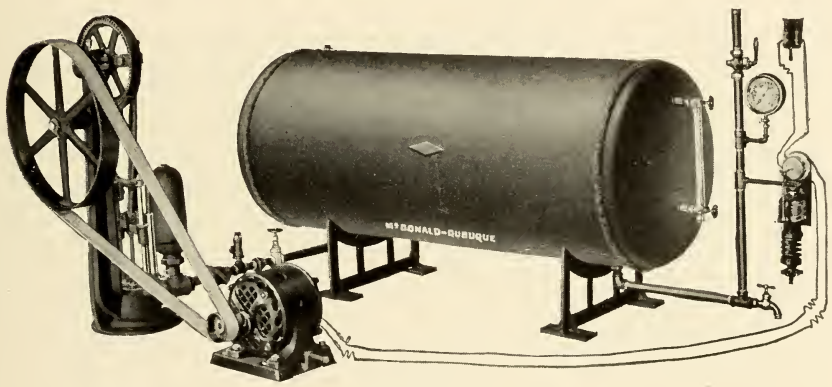


Plate E6131

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Riveted Pressure Tank and Iron Stands for same.
1 Power Working Head with Machine Cut Gears and Air Compressor, for 3-inch well pipe and 1¼-inch discharge.
1 ¾-H. P. Electric Motor, as listed below, with 20 feet of good 3-inch Leather Belt.
1 Automatic Switch to start and stop motor.
1 each, Special Horizontal Cast Iron Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb which also serves as a drain cock.

Size of Tank	Capacity of Tank Gallons	Alternating Current Motor ¾ H. P.	Direct Current Motor ¾ H. P.
42 inch by 10 foot	720	**378.00**	**374.00**

If Automatic Switch is not wanted, deduct from list for ¾-H. P. Motor 18.00. Jack Knife Switch shown is not included in the price.

In ordering, be careful to state Size and Kind of Motor, and Size of Tank wanted.

The same Working Head, Motor and Fixtures will work equally well on any size of tank, either vertical or horizontal.

Following Table shows capacity per hour of this outfit and extreme depth of wells in which they will operate with cylinders of various diameters, with maximum pressure of 50 pounds in tank. Stroke 8 inches, 44 strokes per minute. Or if maximum pressure in tank is less than 50 pounds, it will operate on deeper wells. By reducing the length of stroke to 6 inches, the capacity per hour is reduced one-fourth, with a corresponding increase in the depth of the well on which Motor will work.

Size of Motor H. P.	Diameter of Cylinder Inches	Gallons per Hour	Depth of Well to Water, Feet
¾	1¾	220	175
¾	2	285	100
¾	2¼	360	60
¾	2½	440	30

McDONALD WATER SUPPLY SYSTEMS

WITH DIRECT ELECTRIC DRIVEN POWER WORKING HEAD AND AIR COMPRESSOR

FOR SUPPLYING WATER FROM DEEP WELLS

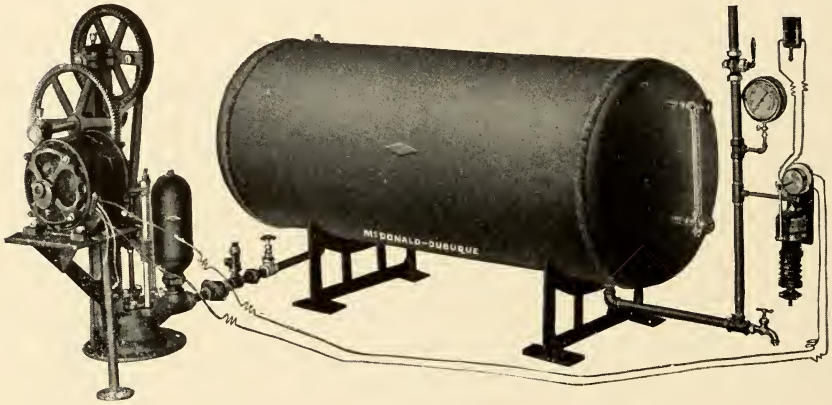


Plate E6141

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head connected direct to 1-H. P. Electric Motor, with Air Compressor, Rawhide Motor Pinion and Machine Cut Gears. Tapped for 3-inch well pipe and 2-inch discharge pipe.

1 Automatic Switch to start and stop Motor.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb, which also serves as a drain cock.

	Alternating Current	Direct Current
Price, with 42-inch by 10-foot Tank, 720 Gallons Capacity	**421.00**	**408.00**

If without Automatic Switch, deduct from list 30.00.

This Power Working Head and Motor are powerful enough to operate a 2¾-inch Cylinder in a 75-foot well and will furnish about 500 gallons an hour, against a tank pressure of 45 pounds. It will operate smaller cylinders in deeper wells, or larger cylinders in shallower wells. By reducing the length of stroke to 6-inch, the power is increased one-fourth, enabling this outfit to work under a greater load, and the quantity of water furnished would be one-fourth less.

The same Working Head, Motor and Fixtures will work equally well on any size of tank, either vertical or horizontal.

In ordering, be careful to state kind of Motor and size of Tank wanted. Above prices do not include Cylinder, Well Pipe or Pump Rod suspended in the well.

McDONALD WATER SUPPLY SYSTEMS

WITH DIRECT ELECTRIC DRIVEN POWER WORKING HEAD AND AIR COMPRESSOR

FOR SUPPLYING WATER FROM DEEP WELLS

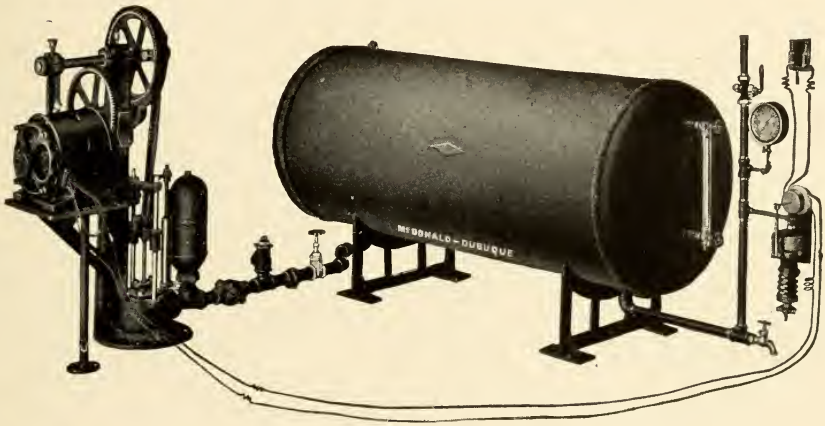


Plate E6151

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, connected direct to 1-H. P. Electric Motor, with Air Compressor. Rawhide Motor Pinion and Machine Cut Gears. Tapped for 3-inch well pipe and discharge pipe bushed to 1¼ inches.

1 Automatic Switch to start and stop motor.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb, which also serves as a drain cock.

	Alternating Current	Direct Current
Price, with 42-inch by 10-foot Tank, 720 gallons capacity.....	**433.00**	**420.00**

If without Automatic Switch, deduct from list, 30.00.

WORKING HEAD is designed for fairly heavy duty, and with the 1-H. P. Electric Motor will operate in wells up to 75 feet deep with cylinders up to 2¾-inch diameter against a tank pressure of 50 pounds, delivering about 500 gallons an hour. And it will operate in deeper wells with smaller cylinders or in shallower wells with larger cylinders.

The same Working Head, Motor and Fixtures will work equally well on any size of tank, either vertical or horizontal.

In ordering, be careful to state Size of Tank wanted, and the Kind of Motor required to meet the Electrical Conditions.

Above prices do not include Cylinder, Well Pipe or Pump Rod suspended in the well

McDONALD WATER SUPPLY SYSTEMS

WITH POWER WORKING HEAD, AIR COMPRESSOR ATTACHED

FOR SUPPLYING WATER FROM DEEP WELLS, FOR TWO HORSE POWER

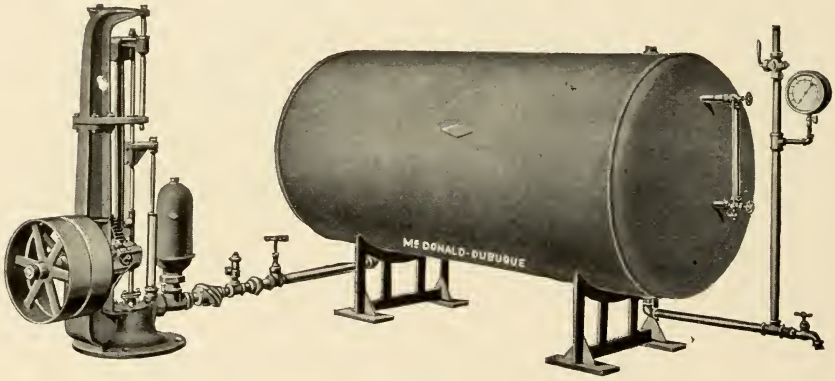


Plate E6161

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, 6, 8 or 10-inch stroke, Machine Cut Gears, with Air Compressor, for 3-inch well pipe and discharge bushed to 1¼ inches. Pulleys 3¼-inch face by 14 inches in diameter. Back Geared 5½ to 1.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb, which also serves as a drain cock.

Price, with 48-inch by 14-foot Tank, 1300 Gallons Capacity..... **388.00**

In ordering, be careful to state size of Tank wanted.

This Working Head is capable of supplying 615 gallons of water an hour with a 2¾-inch cylinder in a well 150 feet deep against a pressure of 50 pounds in the tank.

The same Working Head and Fixtures will work equally well on any size of tank, either vertical or horizontal, and in deeper wells with smaller cylinders.

Above prices do not include Cylinder, Well Pipe or Pump Rod suspended in the well.

McDONALD WATER SUPPLY SYSTEMS

WITH DIRECT ELECTRIC DRIVEN WORKING HEAD AND AIR COMPRESSOR

FOR SUPPLYING WATER FROM DEEP WELLS

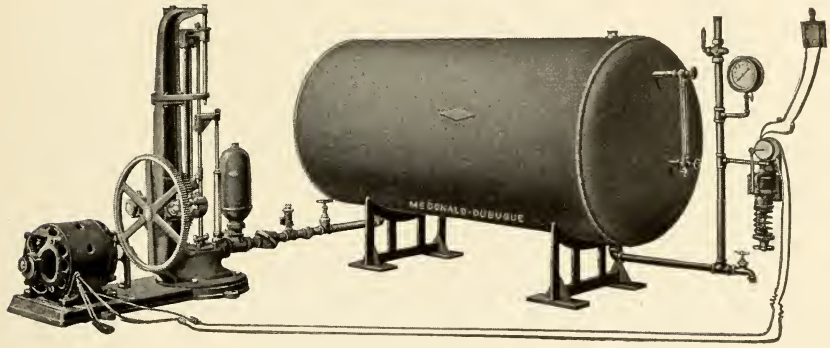


Plate E6171

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, connected direct to Electric Motor, with Air Compressor, Rawhide Motor Pinion and Machine Cut Gears. Tapped for 3-inch Well Pipe and discharge bushed to 1¼ inches.

1 Automatic Switch to start and stop motor.

1 each, Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb, which also serves as a drain cock.

Size of Tank	Capacity of Tank, Gals.	Alternating Current Motor 1 H. P.	1½ H. P.	2 H. P.	Direct Current Motor 1 H. P.	1½ H. P.	2 H. P.
48 inches by 14 feet	1300	**537.00**	**557.00**	**607.00**	**524.00**	**544.00**	**594.00**

If without Automatic Switch, deduct from list 30.00. Jack Knife Switch shown is not included in the price.

The same Working Head, Motor and Fixtures will work equally well on any size of tank, either vertical or horizontal.

In ordering be careful to state Size of Tank wanted, and the kind of Motor required to meet the Electrical Conditions.

WORKING HEAD is designed for deep well service and with the 2 H. P. Electric Motor will operate in wells up to 150 feet deep with cylinder 2¾ inches in diameter, against a tank pressure of 50 pounds, delivering about 615 gallons an hour; and it will operate in deeper wells with smaller cylinders or in shallower wells with larger cylinders.

Above prices do not include Cylinder, Well Pipe or Pump Rod suspended in the well.

McDONALD WATER SUPPLY SYSTEMS

WITH ELECTRIC MOTOR AND POWER WORKING HEAD WITH AIR COMPRESSOR

FOR SUPPLYING WATER FROM DEEP WELLS FOR TWO HORSE POWER OR LESS

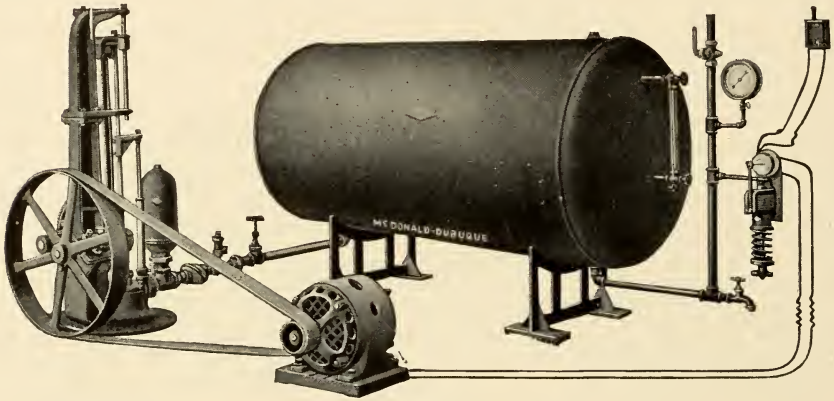


Plate E6181

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, 6, 8 or 10-inch stroke, Machine Cut Gears, with Air Compressor, for 3-inch well pipe and discharge bushed to 1¼-inch pipe.

1 Electric Motor, 1, 1½ or 2 Horse Power, either Alternating or Direct Current, as listed below, with 25 feet of good 3-inch Leather Belt.

1 Automatic Switch to start and stop motor.

1 each Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb, which also serves as a drain cock.

		Alternating Current Motor			Direct Current Motor		
Size of Tank	Capacity of Tank, Gals.	1 H. P.	1½ H. P.	2 H. P.	1 H. P.	1½ H. P.	2 H. P.
48 inches by 14 feet	1300	**526.00**	**546.00**	**596.00**	**513.00**	**533.00**	**583.00**

If Automatic Switch is not wanted, deduct from list 30.00. Jack Knife Switch shown is not included in the price.

WORKING HEAD is designed for deep well service, and with 2 H. P. Electric Motor will operate a 2¾-inch cylinder in a well 150 feet deep against a tank pressure of 50 pounds, delivering about 615 gallons an hour. It will operate in deeper wells with smaller cylinders, and in shallower wells with larger cylinders. The 1½ H. P. and 1 H. P. Motors, of course, will not accomplish as heavy duty as the 2 H. P. Motor.

In ordering, be careful to state size and kind of Motor, and size of Tank wanted.

The same Working Head, Motor and Fixtures will work equally well on any size of tank, either vertical or horizontal.

Above prices do not include Cylinder, Well Pipe or Pump Rod suspended in the well.

McDONALD WATER SUPPLY SYSTEMS

WITH POWER WORKING HEAD

AIR COMPRESSOR ATTACHED FOR SUPPLYING WATER FROM DEEP WELLS

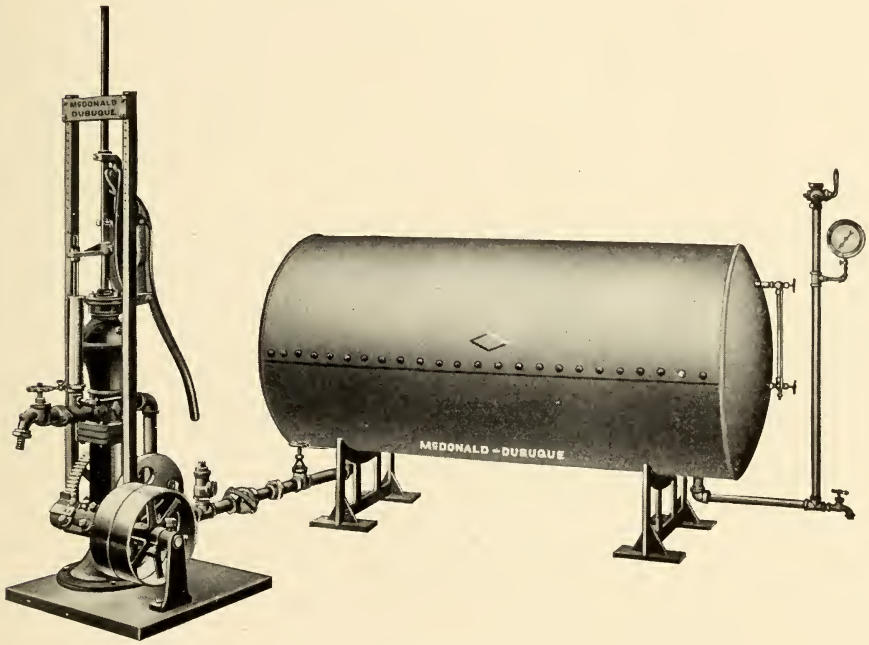


Plate E6191

Complete as shown, except pipe and pipe fittings, consists of the following: 1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, 6, 8 and 10-inch stroke, Machine Cut Gears, Cock Spout, Air Compressor, and 12 by 3¼-inch tight and loose Pulleys. Babbitted Boxes with Removable Caps. Tapped for 3-inch Well Pipe and 2-inch Back Discharge, bushed to 1¼-inch.

1 each Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Diamond Lever Handle Stop and Waste Cock and Compression Hose Bibb which also serves as a drain Cock.

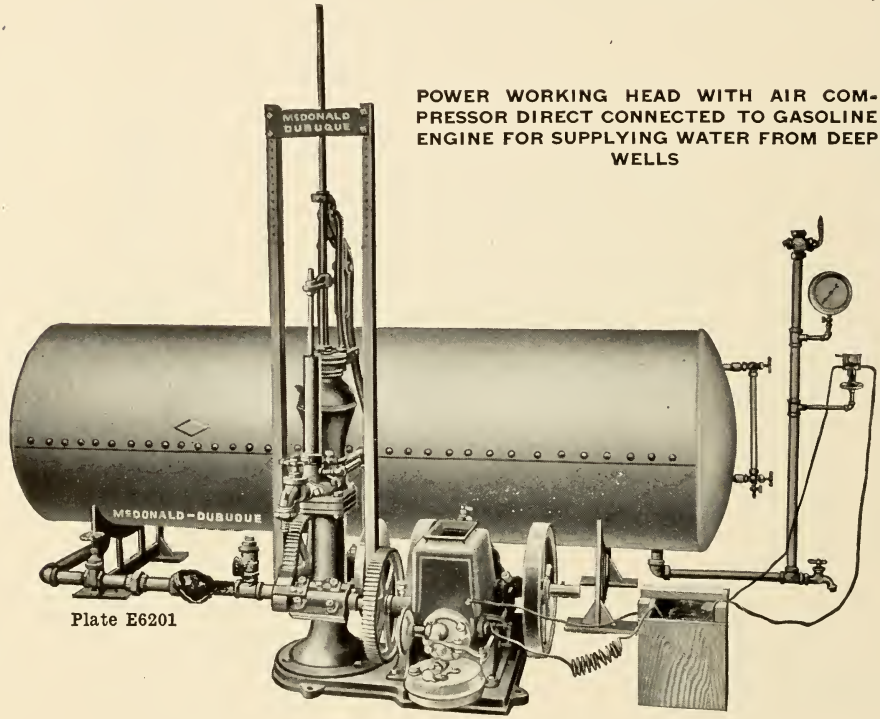
Price, with 42-inch by 10-foot Tank, 720 gallons capacity..... **268.00**

Above price does not include Well Pipe, Pump Rod, or Cylinder suspended in the well.

The same Working Head and Fixtures will work equally as well on other sizes of tanks, either Vertical or Horizontal.

This Working Head is to be operated by gasoline engine or pulley on line shaft, and is capable of operating a 2¾-inch cylinder in a well 100 feet deep against a tank pressure of 50 pounds, supplying about 615 gallons an hour. It is suitable for uses up to 1½ H. P. Load. **BACK GEARED 6 TO 1** and should not run faster than 40 up strokes a minute.

McDONALD WATER SUPPLY SYSTEMS



POWER WORKING HEAD WITH AIR COMPRESSOR DIRECT CONNECTED TO GASOLINE ENGINE FOR SUPPLYING WATER FROM DEEP WELLS

Plate E6201

Complete as shown, except pipe and pipe fittings, consists of the following:

1 Horizontal Pressure Tank and Iron Stands for same.

1 Power Working Head, 6, 8 and 10-inch Stroke, with Air Compressor and Cock Spout, connected direct to 1½ H. P. Gasoline Engine. Engine and Working Head are mounted on a Cast Iron Base. Machine Cut Gears, and Babbitted Boxes with Removable Caps. Tapped for 3-inch Well Pipe, and 2-inch Back Discharge bushed to 1¼-inch.

1 Automatic Gasoline Engine Stop, which stops the Engine at desired pressure.

1 each Special Cast Iron Horizontal Check Valve, Diamond Relief Valve, Brass Gate Valve, Water Gauge, Pressure Gauge, Diamond Lever Handle Stop and Waste Cock and Compression Hose Bibb which also serves as a drain cock.

Price, with 42-inch by 10-foot Tank, 720 gallons capacity..... **380.00**

If without Automatic Gasoline Engine Stop, deduct from list **10.00**

Above prices do not include Well Pipe, Pump Rod or Cylinder.

The same Working Head, Engine and Fixtures will work equally as well on other sizes of tanks, either Vertical or Horizontal. In ordering be sure to state size of tank wanted.

This Working Head and Engine are capable of operating a 2¾-inch cylinder in a well 100 feet deep against a tank pressure of 50 pounds, supplying about 615 gallons an hour. It will operate smaller cylinders in deeper wells, or larger cylinders in shallower wells.

McDONALD WATER SUPPLY SYSTEMS

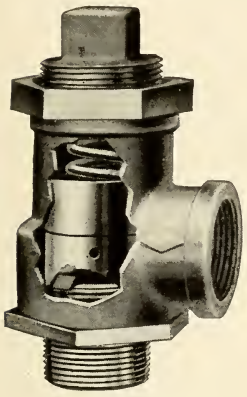


Plate E6211

DIAMOND WATER RELIEF VALVES

The Diamond Water Relief Valves regularly have Cast Iron Body, Bronze Spring, Brass Valve Seat and Brass Plunger with Countersunk hard Rubber Disc. They are also made All Brass.

All working parts are Brass or Bronze, and the hard rubber disc is countersunk into the plunger so that it cannot expand, and is very durable.

In many cities the water pressure varies. Excessive pressure, such as fire pressure on city mains, requires a relief valve to remove the strain from the house pipes, range boiler, faucets, etc. Cities frequently require the use of a relief valve in such buildings to prevent injury to pipe and fittings from such excessive pressure.

If water pressure regulators are used, the Diamond Water Relief Valve is necessary to relieve pressure generated by the expansion of water in the range boiler, as water will not flow back to the mains through pressure regulators. ¾-inch size is sufficiently large for ordinary residence use.

Another important use for the Diamond Relief Valve is in connection with Pressure Tank Systems. Excessive pressure might strain the tank and cause it to leak, especially when windmill or power is used to operate the pump. We advise the use of a relief valve the same size as the discharge pipe of the pump, or preferably one size larger.

Diamond Water Relief Valves are the lowest priced good relief valves on the market. They should be placed between the Pump and the Check Valve.

Regularly sent set to relieve at 70 pounds, but can be furnished set to relieve at any desired pressure.

Size Iron Pipe ..... inches	¾	1	1¼
Price, Iron Body ..... each	2.00	3.00	4.00
" All Brass ..... "	3.00	4.00	5.50

DUBUQUE BRASS WATER RELIEF VALVES

¾-INCH FOR COLD WATER

Plate E6212

Dubuque Water Relief Valves are made entirely of brass, with Bronze Springs and Special Rubber Discs. They are used extensively in connection with small Water Supply Systems, and on Water Supply Pipes where city ordinances require an All Brass Relief Valve. Regularly sent set to relieve at 70 pounds pressure, can be furnished to relieve at any desired pressure at the same price. A moderate priced and very satisfactory Relief Valve. One size only, for ¾-inch iron pipe.

Price ..... each 2.50

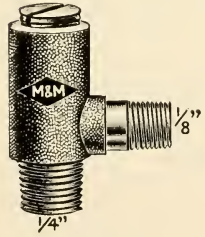


Plate E6213

JUNIOR DIAMOND RELIEF VALVES

The Junior Diamond Relief Valve is made of solid brass, and in one size only, being threaded for ¼-inch pipe on the pressure end and ⅛-inch pipe on relief side.

It is principally used to relieve excessive pressure caused by expansion of water in range boilers, when pressure regulators and meters are used.

It has a countersunk rubber disc closing against a raised rounded seat, but can be furnished with leather disc if desired.

Unless otherwise ordered, valves are sent set to relieve at 70 pounds.

Price ..... each .80

McDONALD WATER SUPPLY SYSTEMS

DIAMOND HORIZONTAL CHECK VALVES

FOR WATER SUPPLY SYSTEMS AND DISCHARGE PIPES FROM FORCE PUMPS

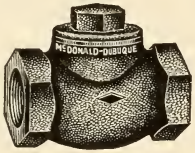


Plate E6221

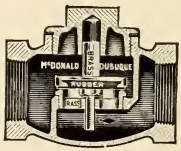


Plate E6222

Diamond Horizontal Check Valves are the result of many years experience in Pumps and Water Supply Systems. The need of a positive, durable and simple Horizontal Check Valve for Water and for Air and Water, has long been recognized. We now offer these valves as the **BEST** for use on horizontal discharge pipes from pumps, whether for water only or for air and water combined.

WATER WAYS are **AMPLE** in size. **VALVE SEAT** is **BRASS** so it will not rust or corrode. **PUPPET** is Brass, guided below by the Cross Bar of the Valve Seat, and guided above by a hole of proper size in the Valve Cap. **DISC** is **HIGH GRADE RUBBER, ENCASED** in the Puppet so that it will be permanent in shape and durable.

Size, Iron Pipe.....inches	¾	1	1¼	1½	2
Price.....each	2.00	2.00	3.00	3.00	4.00

SPECIAL CAST IRON HORIZONTAL CHECK VALVES

FOR PRESSURE TANK SYSTEMS

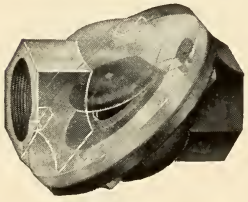


Plate E6223

This Valve is particularly adapted for use in connection with Private Water Works Systems (Pressure Tanks). It is superior to the regular iron horizontal check valve with leather valve.

It is made of two cast iron parts securely bolted together, and with a rubber valve between. The lower cast part is carefully machined and finished to make a perfect valve seat.

The Valve is pure rubber, elastic and durable. A Rubber Check Valve is superior to leather as it closes much more quickly and tightly and prevents air coming back through the valve. Rubber, being elastic and yielding, makes a more positive joint than leather.

We recommend placing this Special Check Valve on the discharge pipe of pumps, putting it between the pump and pressure tank, as close to the pump as is practical. It should be between the gate valve and the pump.

Size.....inches	¾	1	1¼	1½	2
Price.....each	1.25	1.50	1.75	2.25	3.00

DIAMOND PATTERN COCKS

PATENT CAP **STEAM METAL** **MALLEABLE HANDLE**

STOP—IRON PIPE

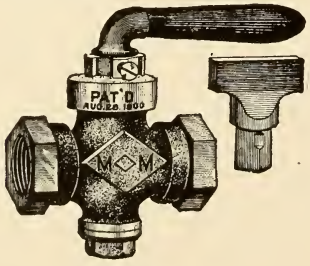


Plate E6224

STOP AND WASTE—IRON PIPE

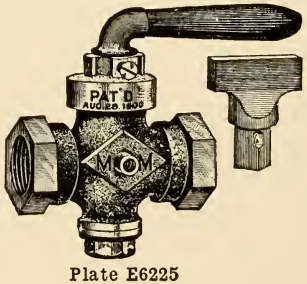


Plate E6225

McDONALD WATER SUPPLY SYSTEMS

Plate E6231

BRASS GATE VALVE

We recommend the use of a gate valve between Special Iron Horizontal Check Valve and the Pressure Tank. The Gate Valve should be closed as soon as the pump stops, thus taking the pressure off check valve. The Gate Valve is also valuable as it can be closed at any time when pump needs repairing, thus saving the water in pressure tank.

Size....inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price.....each	**1.45**	**1.45**	**1.65**	**2.05**	**2.80**	**3.70**	**5.00**	**7.30**	**13.00**	**19.00**

BRASS COMPRESSION HOSE BIBB

In connection with McDonald Water Supply Systems we recommend the use of a Compression Hose Bibb at the low point of the discharge pipe from pressure tank. Located there it serves a double purpose, one for drawing water at pressure tank and the other is a drain cock in case it is necessary to empty the whole system.

Our Compression Bibbs are made of a good grade of Red Brass; the Disc is hard rubber countersunk in end of stem, thus insuring long wear and freedom from leakage.

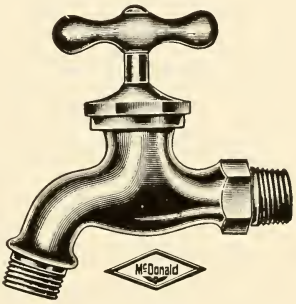


Plate E6232

Size.....inches	½	⅝	¾	1
Price, Rough.....each	**1.70**	**2.15**	**2.80**	**5.10**
" Finished..... "	**1.90**	**2.35**	**3.00**	**5.60**

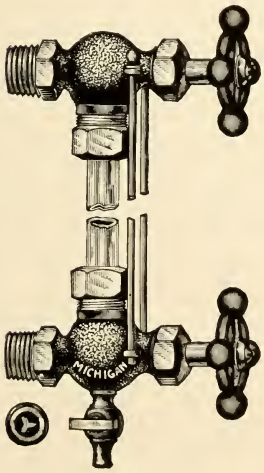


Plate E6233

WATER GAUGES

While Water Gauges are not necessary on a Pressure Water Supply System, they are generally used, as they give the operator a much better idea of how the air supply is being maintained in the pressure tank. They are sent with each McDonald Water Supply System of proper size to fit the pressure tank.

All pressure tanks are tapped for water gauges, but water gauge is not sent with pressure tank when pressure tank only is ordered.

McDONALD WATER SUPPLY SYSTEMS

PRESSURE GAUGE

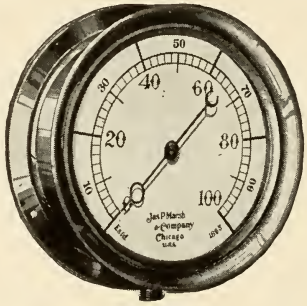


Plate E6241

We advise the use of a Pressure Gauge on all pressure water supply systems, to enable the user to know what the pressure is at all times. Our pressure gauges are accurate and durable. A gauge cock, threaded for ¼-inch pipe is packed with each gauge.

Size Dial.....inches	2½	3	3½	4½	5	5½	6
Price, Iron Case, Brass Ring....each	6.00	6.00	7.00	8.00	8.00	10.00	13.00
" " " N. P. " .... "	6.15	6.15	7.18	8.20	8.20	10.25	13.50
" Brass Case..... "	8.00	8.00	9.00	10.00	11.00	12.00	16.00
" Nickel-plated Case..... "	8.60	8.60	9.75	11.00	12.00	13.25	17.50

AIR PUMP

This two-cylinder Air Pump is very effective in replacing air absorbed in Pressure Water Supply Systems, where there is no method of supplying air in connection with the Water Pump. Most of the McDonald Water Supply Systems are arranged to keep up the air supply in Pressure Tank without the use of this Independent Air Pump. It has 2—3½-inch x 5-inch stroke cylinders and is the fastest Air Pump on the market.

It is 50 inches high; discharge is for either ¼-inch iron pipe or 5/16-inch hose.

Price.....each **15.00**

It is advisable to use this Air Pump when pressure in tank is low, as it is easier to add air at low pressure.

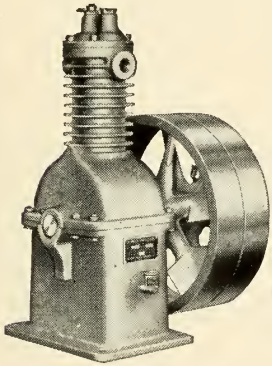
Plate E6242

AIR COMPRESSORS

MODEL B, CONTROLLED SPLASH OILING

FOR WATER SUPPLY SYSTEMS, GARAGES, ETC.

EXTERIOR



SECTIONAL

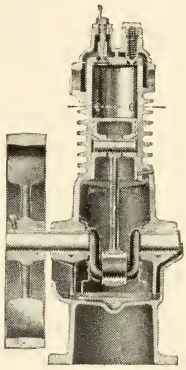


Plate E6251

These have Controlled Splash Self-Oiling System, permanently regulated. No oil can get into tires and the compressor requires less oil and attention than any other splash oiling compressor. They have Oil Filling Gauge, so you can tell at a glance the amount of oil in crank case. Fan Fly Wheel assists in cooling the cylinder. Valves are light in weight and large in area, inspectable without removing head. Safety Cage prevents possibility of broken valves dropping and wrecking machine. Hand Unloader permits starting against full tank pressure. Large Drop Forged Crank Shaft. Head is removable without breaking pipe connections. Only one Gasket.

Size	Bore and Stroke Inches	Standard Speed	Capacity Cubic Feet	Horse Power 100 lb.	Horse Power 200 lb.	Size Pulley Inches	Shipping Weight Pounds	Price, Each — With Tight Pulley Only	Price, Each — With T. & L. Pulley	Price, Each — Automatic Unloader
1	1⅝x2	500	1.2	.24	.31	9x1¾	40	**34.20**	**37.80**	**16.20**
2	2⅛x2½	400	1.8	.36	.47	11x2⅛	60	**37.80**	**41.40**	**16.20**
3	2½x3	350	2.99	.60	.78	12x2⅛	100	**47.40**	**51.30**	**16.20**
4	3 x3½	300	4.32	.87	1.14	14x2⅝	120	**50.40**	**54.00**	**16.20**
5	4½x4½	250	10.4	2.09	2.75	22x4½	385	**108.00**	**126.00**	**19.80**

AUTOMATIC GASOLINE ENGINE STOP

Plate E6252

This switch is connected to the batteries of the gasoline engine, and the diaphragm is connected to the water pressure in tank.

It is set so that when a certain desired pressure is reached in the tank, the catch holding switch down is released, and a coiled spring throws the switch open, cutting the batteries off the engine, and thus stopping it.

By using this switch, the gasoline engine can be left running, and the switch will stop it when the pressure it is set for is reached. A simple and serviceable safety device.

Price.....each **10.50**

AUTOMATIC ELECTRIC SWITCHES

FOR MOTORS UP TO ⅓ H. P.

Plate E6261

This illustrates the Electric Automatic Switch such as we use in connection with our Fig. 440 and Fig. 414 Type E Electric Pumps. This Switch is so arranged as to automatically start and stop the pump at any predetermined pressure. It is designed for a variation of about 20 pounds in pressure, and is regularly furnished to stop motor at a tank pressure of 45 pounds and to start motor when the pressure has fallen to 25 pounds It is intended for use with either A. C. or D. C. Motors.

Price, for ⅙ H. P. and Smaller Motors.....each **15.00**
" " ⅓ " " " " ..... " **17.50**

FOR MOTORS UP TO ¾ H.P.

Plate E6262

For the automatic control of Electric Motors when used with pressure tank water supply systems, where motor is not larger than ¾ H. P. Is of the double-pole type, strong and well made in every particular, and may be used with D. C. or A. C. Motors, single or polyphase, which can be thrown directly across the line. Regularly furnished to stop motor at tank pressure of 45 pounds, and to start at 25 pounds, though these points may be changed when desired.

Price.....each **22.00**

AUTOMATIC ELECTRIC SWITCH

FOR 110 VOLT MOTORS UP TO 3 HORSE POWER OR 220 VOLT MOTORS UP TO 5 HORSE POWER

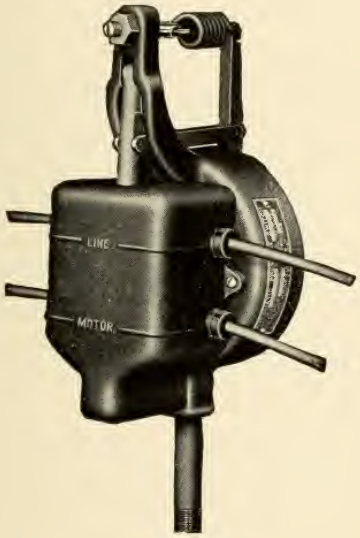


Plate E6271

Diaphragm Pressure Switches are designed for automatic control of electric motors, which drive pumps for hydraulic or pneumatic water systems. They are positive in operation and will open and close at a predetermined pressure.

The bottom of a cup or pan shaped body casting is closed by a flexible phosphor bronze diaphragm. The switch mechanism is mounted on top of this casting. As the position of the diaphragm is varied by the internal pressure, its motion is communicated to the switch mechanism, which in turn causes the switch contacts to open and close when certain ranges of movement of the diaphragm are reached.

The Switch is of double pole, quick break construction, and the current carrying parts are exceptionally rugged and are capable of heavy overloads.

The Pressure Switch is supported by the $\frac{3}{8}$-inch supply pipe, requiring no other bracket or support.

These Switches are capable of handling 20 amperes at 110 volts or 10 amperes at 220 volts, on either alternating or direct current circuits. For throwing alternating current motors directly on the line, these switches will be satisfactory for use with single, two or three phase as follows:

Up to and including 3 horse power 110 volts or 5 horse power 220 volts.

The difference in pressure between the opening and closing of the Switch is a fixed difference and cannot be changed.

A Phosphor Bronze Diaphragm is used which is practically indestructible.

The current carrying parts of the double pole switch are entirely insulated from the mechanism.

The quick break feature insures absolute rupture of all arcs.

Switch mechanism is positive in its action and will not vary with operating pressure.

Auxiliary contacts prevent switch contacts from burning. Switching mechanism is totally enclosed.

	Standard Adjustment Pounds		Range of Adjustment Pounds				
			Minimum		Maximum		List
	Closes	Opens	Closes	Opens	Closes	Opens	Price
Low Pressure	15	30	5	20	25	40	**35.00**
Medium Pressure	35	50	20	35	70	85	**35.00**
High "	90	110	70	90	110	130	**35.00**

AUTOMATIC ELECTRIC SWITCHES

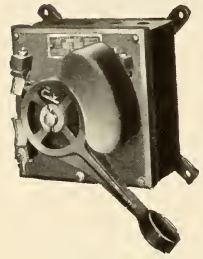


Plate E6281

OPEN TYPE FLOAT

Open type float switches are used for remote control of automatic starting rheostats or panels, together with the usual accessories, namely, float, chain pulleys and counterweight, for the automatic starting and stopping of motors where it is desired to maintain a predetermined water level on an open tank or reservoir system. The switch contacts are designed for handling pilot circuits for self-starters, or for controlling the main line circuits of small motors.

While these switches are suitable for many installations, the enclosed switch is recommended because it is entirely enclosed in a weather-proof case.

Descriptive	Amps. Capacity (A-C. or D-C.)	Horse Power	Price	Descriptive	Amps. Capacity (A-C. or D-C.)	Horse Power	Price
Single Pole	15 at 110/125 V.	2	29.00	Double Pole	25 at 110/125 V.	3½	38.00
	10 " 220/250 V.	3			15 " 220/250 V.	4½	
	5 " 500/550 V.	3½			10 " 500/550 V.	7	

Above prices include 1 copper cylindrical float, 2 pulleys, 15 feet of bronze chain and 1 counterweight. If more than 15 feet of chain is required, add 10 cents per foot for each additional foot.

ENCLOSED TYPE

Enclosed switches are weather-proof and are suitable for tank or sump switches, in the case of the latter, it only being necessary to change the lever or the float from the right to the left side of the switch.

The switches are enclosed in a cast iron case tapped for 1¼-inch conduit which enters at the top. The lower half of the case is removable for making connections and inspection.

All sizes are suitable for 30 amperes, either alternating or direct current, up to 550 volts, when connected in a motor circuit and are also suitable for all control circuits. On two or three phase motors, 60 cycle, they are suitable for 5 H. P. at 110 volts, or 10 H. P. at 220 volts. On Single Phase motors are suitable for 3 H. P. at 110 volts or 5 H. P. at 220 volts.

To eliminate all arcing and burning of the contacts, the switch is arranged for quick breaking.

WITH COVER REMOVED

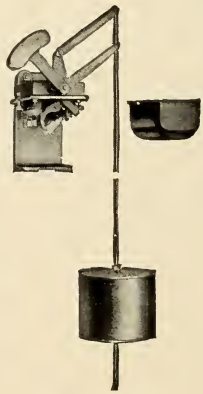


Plate E6282

Cat. No.	Form	No. of Poles	Price	Cat. No.	Form	No. of Poles	Price
141636	A	S-P.	46.00	141644	C	S-P.	56.00
141637	A	D-P.	48.00	141645	C	D-P.	58.00
141638	A	T-P.	60.00	141646	C	T-P.	69.00
141639	A	4-P.	63.00	141647	C	4-P.	71.00
141640	B	S-P.	54.00	141648	D	S-P.	*58.00
141641	B	D-P.	56.00	141649	D	D.P.	*60.00
141642	B	T-P.	67.00	141650	D	T-P.	*71.00
141643	B	4-P.	69.00	141651	D	4-P.	*74.00

*Prices for Form D switches include 15 feet of bronze chain. If more than this amount is required, add .10 net retail for each additional foot.

Form A is for clamping to the inside top edge of the tank and is operated by a rod and float. Range, 10 inches to 2 feet.

Form B is for bolting to tank cover and requires a guide in the cover for the operating rod. Range, 10 inches to 3½ feet.

Form C is the same as Form B except that no guide is required in the tank cover. Range, 10 inches to 3½ feet.

Form D is for bolting to tank cover and is operated by a chain and float, thus being suitable for any depth of tank or variation in water level not less than 10 inches.

Length of chain should be specified on ordering.

MOTORS AND ENGINES

ELECTRIC MOTORS

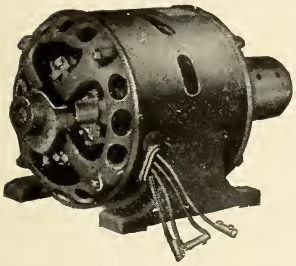


Plate E6291

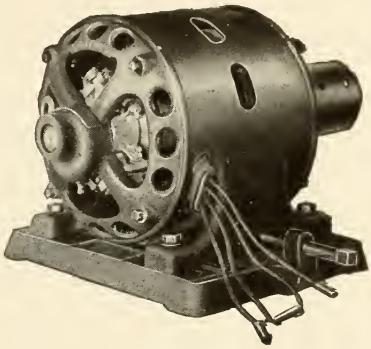


Plate E6292

We can supply Electric Motors of any size to operate Pressure Water Systems.

Owing to the difference in styles of Electric Motors required by variation of voltage, wiring, etc., we will quote prices on Electric Motors on application. It is necessary for us to know kind of Current, Voltage and Phase of Motor, which information can be obtained from your local Electric Company. It is also necessary to know Diameter and Depth of Well, and Amount of Water.

GASOLINE ENGINES

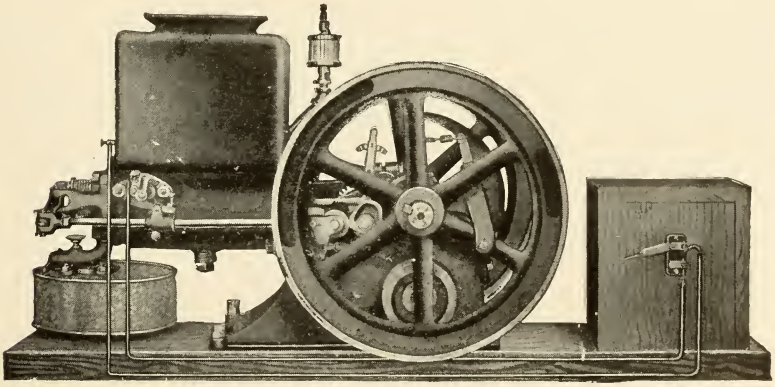


Plate E6293

We can furnish Gasoline or Kerosene Engines of any size to operate Water Supply Systems. Write for prices, giving details as to amount of water desired, depth and diameter of well, pressure required, etc.

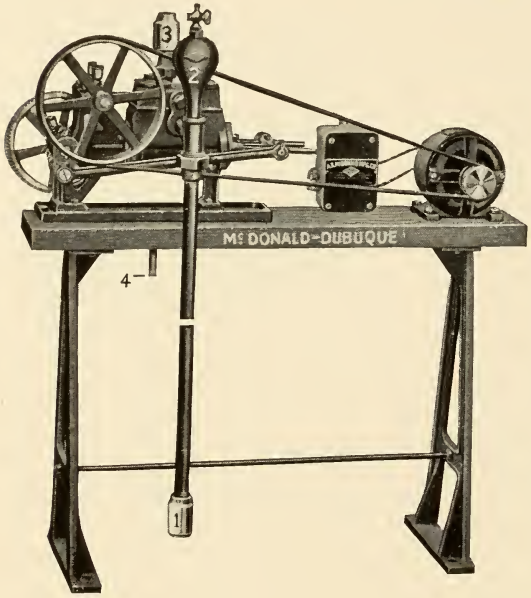
McDONALD ELECTRIC WATER LIFT

FOR DIRECT PRESSURE SYSTEMS

AUTOMATIC EFFICIENT SIMPLE SILENT

FOR SUPPLYING WATER UNDER PRESSURE FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 440-AE



This shows an Automatic, Electric Driven, Double Acting, Power Force Pump with a capacity of approximately 180 gallons per hour. It is an improved House Service Pump, answering the same general purpose as Water Motor Pumps, but easier to keep in order, and less expensive to operate, as very little electric current is necessary for its operation.

PUMP is Brass Lined, Double Acting, with Vacuum Chamber on suction end, and Brass Vertical Check Valve on discharge. **CAST BRASS VALVES** ground to fit Cast Brass Valve Seats, without leather or rubber washer to wear out and cause trouble. **PISTON ROD** and **PACKING GLAND** are brass. **MACHINE CUT GEAR** and **RAWHIDE MOTOR PINION** insure durability and quiet operation. **OIL CUPS** at **SPLIT BABBITTED SHAFT BEARINGS.** Cast Iron Connecting Rods. **CROSSHEAD** operates on two Steel Guide Rods, keeping the Piston Rod in alignment. **SUCTION** ¾-inch, and **DISCHARGE** ½-inch, with Union Fitting for each.

Mounted on cast iron Bed Plate. **A BRASS FOOT VALVE** is furnished for end of suction pipe.

AUTOMATIC ELECTRIC SWITCH to control pressure in tank, approximately **20 POUNDS MINIMUM, 45 POUNDS MAXIMUM.** Switch tapped for ⅛-inch pipe connection to Pressure Tank.

ELECTRIC MOTOR, either Alternating or Direct Current, depending upon local electrical conditions. In ordering, give exact information as to current available. Motors are built for **CONTINUOUS SERVICE.**

Provision is made for adding air to Pressure Tank as may be needed, a valve at top of Vacuum Chamber serving the purpose.

Pump, Motor and Automatic Switch securely mounted on a 2-inch plank, and supported on cast iron legs as shown, or on brackets when so ordered.

A Pressure Tank, not less than 52 gallon, is necessary for the satisfactory operation of this pump, and larger sizes of tanks are recommended.

Over-All Dimensions: Height, 41 inches; Width, 16 inches; Length, 38 inches; Height of Stand only, 26 inches.

Shipping Weight, 140 pounds.

No. 1—Complete as shown and described, with Single Phase, 60 cycle, 110 or 220 Volt, Alternating Current Motor.....each	**105.00**
No. 2—Complete as shown, but with Single Phase, 110-220 Volt, Alternating Current Motor, for 25, 30, 40, 50, 125, or 133 Cycles.....each	**115.00**
No. 3—Complete as shown, with 110 or 220 Volt, Direct Current Motor..each	**105.00**
" 4— " " " " 30 " 60 " " " " for use with Domestic Lighting Systems.....each	**108.00**
For Open Tank Systems, without Automatic Switch, deduct from above lists	**12.50**
Extra for McDonald Fresh Water Attachment.....	**7.00**

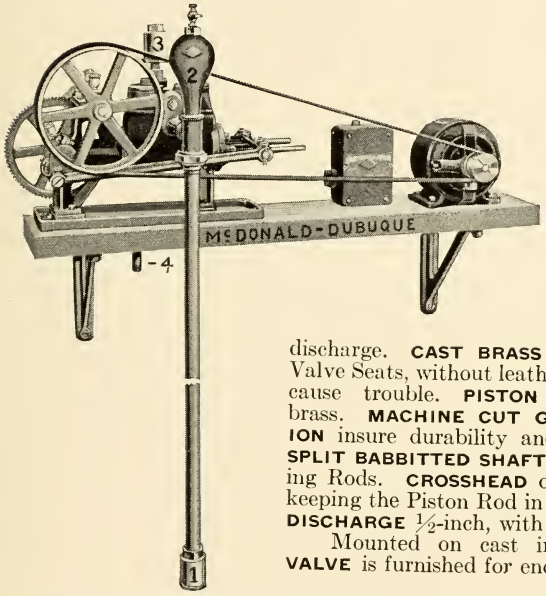
McDONALD ELECTRIC WATER LIFT

FOR DIRECT PRESSURE SYSTEMS

AUTOMATIC EFFICIENT SIMPLE SILENT

FOR SUPPLYING WATER UNDER PRESSURE FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 440-A. E. B.



This shows an Automatic, Electric Driven, Double Acting, Power Force Pump, with a capacity of approximately 180 gallons per hour. It is an improved House Service Pump, answering the same general purpose as Water Motor Pumps, but easier to keep in order, and less expensive to operate, as very little electric current is necessary for its operation.

PUMP is Brass Lined, Double Acting, with Vacuum Chamber on suction end, and Brass Vertical Check Valve on discharge. **CAST BRASS VALVES** ground to fit Cast Brass Valve Seats, without leather or rubber washer to wear out and cause trouble. **PISTON ROD** and **PACKING GLAND** are brass. **MACHINE CUT GEAR** and **RAWHIDE MOTOR PINION** insure durability and quiet operation. **OIL CUPS** at **SPLIT BABBITTED SHAFT BEARINGS.** Cast Iron Connecting Rods. **CROSSHEAD** operates on two Steel Guide Rods, keeping the Piston Rod in alignment. **SUCTION** ¾-inch, and **DISCHARGE** ½-inch, with Union Fitting for each.

Mounted on cast iron Bed Plate. **A BRASS FOOT VALVE** is furnished for end of suction pipe.

AUTOMATIC ELECTRIC SWITCH to control pressure in tank, approximately **20 POUNDS MINIMUM, 45 POUNDS MAXIMUM.** Switch tapped for ⅛-inch pipe connection to Pressure Tank.

ELECTRIC MOTOR, either Alternating or Direct Current, depending upon local electrical conditions. In ordering, give exact information as to current available. Motors are built for **CONTINUOUS SERVICE.**

Provision is made for adding air to Pressure Tank as may be needed, a valve at top of Vacuum Chamber serving the purpose.

Pump, Motor and Automatic Switch securely mounted on a 2-inch plank, and supported on brackets.

A Pressure Tank, not less than 52 gallon, is necessary for the satisfactory operation of this pump, and larger sizes of tanks are recommended.

Over-All Dimensions: Height, 18 inches; Width, 16 inches; Length, 38 inches
Shipping Weight, 140 pounds.

No. 1—Complete as shown and described, with Single-phase, 60-cycle, 100 or 220-volt, Alternating Current Motor.....each	**105.00**
No. 2—Complete as shown, but with Single-phase, 110-220-volt, Alternating Current Motor, for 25, 30, 40, 50, 125, or 133 Cycles.....each	**115.00**
No. 3—Complete as shown, with 110 or 220-volt, Direct Current Motor.. "	**105.00**
No. 4—Complete as shown, with 30 or 60-volt, Direct Current Motor, for use with Domestic Lighting Systems.....each	**108.00**
For Open Tank Systems, without Automatic Switch, deduct from above lists	**12.50**
Extra for McDonald Fresh Water Attachment.....	**7.00**

McDONALD ELECTRIC WATER LIFT

FOR DIRECT PRESSURE SYSTEMS

AUTOMATIC EFFICIENT SIMPLE SILENT

FIG. 440-AE TYPE C

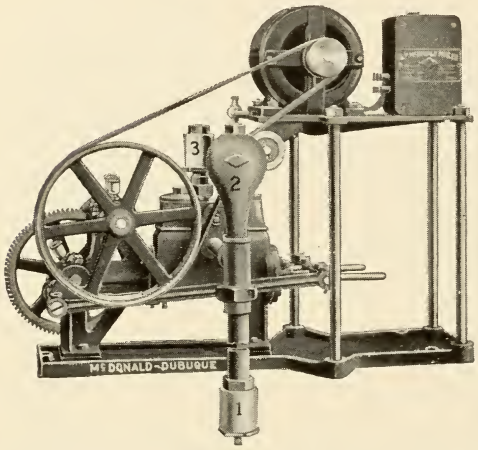


Fig. 440-AE Type C is a McDonald Automatic, Electric Driven Double Acting Power Pump, with Pump, Automatic Switch, and Motor mounted on one cast iron bedplate. It is an extremely compact well arranged outfit, and is desirable where only a small amount of room is available, or where extreme compactness is wanted. It is ordinarily speeded to give a discharge of approximately 180 gallons per hour. It is very easy to keep in order and inexpensive to run, as it may be **OPERATED FROM ANY ORDINARY LIGHTING SOCKET.**

THE CYLINDER AND VALVE CHAMBERS are cast integral, with valves arranged above the Cylinder, so that pump will not lose its priming. **VALVES** are of cast brass, ground to cast brass seats and are easily accessible by unscrewing Valve Cover. **PISTON ROD AND PACKING GLAND** are of brass, the plunger being fitted with double cupped leathers of superior quality. **BEARINGS** are babbitted, with removable caps. **CROSSHEAD** is of cast iron, operating on two steel guide rods, in conjunction with cast iron Connecting Rods. **GEARING** is machine cut, and Rawhide Pinion insures quiet operation.

REGULARLY FITTED for ¾-inch Suction and ½-inch Discharge, with Union Fitting for each. **VACUUM CHAMBER** insures steady and even operation on high lifts. **AUTOMATIC AIR SUPPLY** always available through medium of Air Valve on Vacuum Chamber. **BRASS VERTICAL CHECK VALVE** on discharge line, and **BRASS FOOT VALVE,** both with rubber faced Poppets, are regularly furnished, and should always be used.

AUTOMATIC ELECTRIC SWITCH for motor control is ordinarily set to stop motor at approximately 45 pounds tank pressure, and to start at 20 pounds. **ELECTRIC MOTOR** for either Alternating or Direct Current. Motors furnished are for **CONTINUOUS SERVICE.**

A Pressure Tank of not less than 52 gallons capacity is necessary for satisfactory operation, but larger tanks are to be recommended.

In setting up Fig. 440-AE Type C, it is essential that Bedplate be securely fastened to foundation, thru bolt holes provided for this service.

OVER-ALL DIMENSIONS: Length, 26 inches; width, 16 inches; height, 21 inches; Shipping Weight, 120 pounds.

Number 1—Complete as above, with Single Phase, 110 or 220 Volt, Alternating Current Motor.....each **110.00**
Number 2—Complete as above, with Single Phase 110 or 220 Volt, Alternating Current Motor, for 25, 30, 40, 50, 125, 133 Cycles.....each **120.00**
Number 3—Complete as above, with 110 or 220 Volt, Direct Current Motor.....each **110.00**
Number 4—Complete as above, with 30 or 60 Volt, Direct Current Motor, for use with Domestic Lighting Systems.....each **113.00**

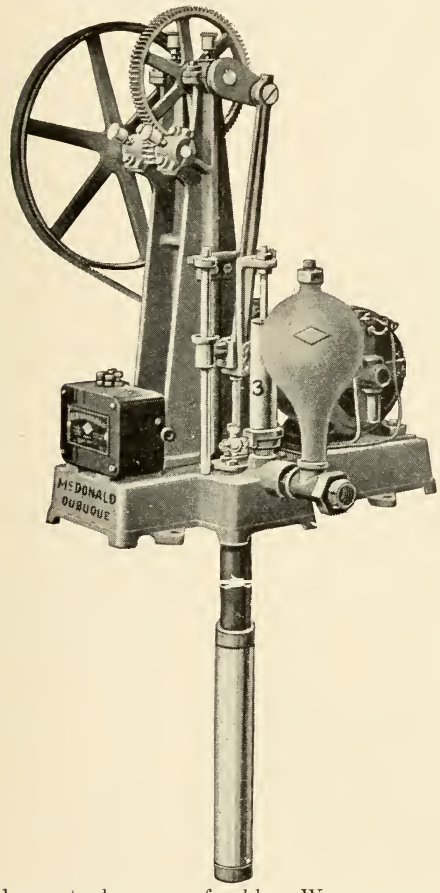
For open Tank Systems, without Automatic Switch, deduct from above lists, 12.50.

In ordering, state whether motor is for 110 or 220 Volt Current, as motors are not interchangeable.

FRESH WATER ATTACHMENT FOR SUPPLYING WATER DIRECT FROM WELL, WITHOUT PASSING THRU TANK, CAN BE FURNISHED AT AN ADDITION OF 7.00 TO ABOVE LIST PRICES

McDONALD ELECTRIC DEEP WELL PUMP

FIG. 414-AC TYPE E



FOR DIRECT PRESSURE SYSTEMS

AUTOMATIC EFFICIENT SIMPLE SILENT

This illustration shows our Automatic, Electric Driven Power Working Head. It is intended for use in wells where the water is more than 25 feet from the surface, and can be used with Pressure Tank Systems, and varying depths of wells, depending upon cylinder sizes.

STANDARD is of cast iron, bolted to Base, which contains suction and discharge pipe connections. **GEARING** is machine cut, with Rawhide Pinion, insuring quiet operation. **BEARINGS** are babbitted, with removable caps. **CROSSHEAD** operates on two Steel Guide Rods. **PISTON ROD** and **PACKING GLAND** are of brass, the latter having bolt adjustment. **AIR CHAMBER** of ample capacity on discharge line.

REGULARLY FITTED for 2-inch Suction (bushed to 1¼-inch or 1-inch as desired) and ¾-inch Discharge, the latter being arranged with Union Fitting. Piston Rod is threaded at lower end for ⅜-inch rod coupling.

AUTOMATIC ELECTRIC SWITCH to control the tank pressure, is regularly set to start motor at approximately 20 pounds, and to stop it at 40 pounds.

ELECTRIC MOTOR for either Alternating or Direct current. Motors furnished are for **CONTINUOUS SERVICE.**

AIR COMPRESSOR, regularly furnished, and driven from Crosshead, insures a positive air supply to tank at all times.

BRASS RELIEF VALVE is ¾-inch and is a valuable safe-guard against excessive pressure.

CYLINDER is Brass Body with Flush Caps, all Brass Plunger, and McDonald Brass Patent Valve, with rubber faced poppet.

A Pressure Tank of not less than 52 gallons capacity is recommended, though larger tanks are preferable. We recommend the use of either a 1⅝-inch, 1¾-inch or 2-inch diameter cylinder, with Fig. 414-AC, Type E, depending upon depth to water and pressure in tank.

In ordering, specify size cylinder desired, and whether motor is for 110 or 220 Volt current, as motors are not interchangeable.

Following outfits are complete except for Drop Pipe and ⅜-inch Steel Rod.

Cylinder Size, In.	Gallons per Hour	Depth to Water Feet	Pressure in Tank Lbs.	Pipe Size, Inches Drop Pipe	Discharge	Dimensions Inches Length	Width	Height	Ship. Wt. Lbs.
1⅝	120	100	40	1	¾	24	18	28	180
1¾	140	75	40	1	¾	24	18	28	180
2	180	40	40	1¼	¾	24	18	28	180

No. 1—Complete as above, with S. P., 60 Cy. 110 or 220 V. A. C. Motor each **130.00**

" 2— " " " " " 110 or 220 Volt A. C. Motor for 25, 30, 40, 50, 125 or 133 Cycles ..... each **140.00**

No. 3—Complete as above, with 110 or 220 Volt, D. C. Motor ..... " **130.00**

" 4— " " " " 30 " 60 " " " ..... " **133.00**

For Open Tank Systems, without Automatic Switch, deduct from above lists **12.50**

Extra for McDonald Fresh Water Attachment **7.00**

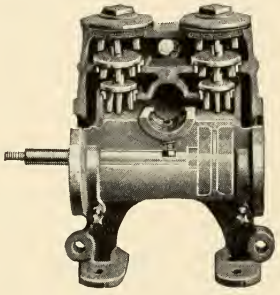
HORIZONTAL DOUBLE ACTING FORCE PUMPS

FOR PRESSURE OR OPEN STORAGE TANKS

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

SECTIONAL

BRASS COVERED PISTON ROD AND HIGH GRADE PLUNGER LEATHERS



RED BRASS VALVES GROUND TO FIT ON RED BRASS VALVE SEATS

Above sectional view shows the arrangement of valves, cylinder, plunger, suction and discharge of Figs. 46, 46 S., 46 S. O., 46 A. C., and 346, 47, 48, 400, 440, 445, 446 and 447 pumps on following pages.

Note that the **CYLINDER** and **PLUNGER** are **BELOW** the suction and discharge valves, consequently the cylinder always remains full of water, is always primed, ready for service.

Only one casting makes legs, cylinder and valve chambers, eliminating all horizontal joints, which are not easy to keep tight.

VALVE CAPS, at the top of pump, are easily unscrewed, permitting the removal of both suction and discharge checks without disturbing heads of cylinder. Many other makes of horizontal double acting pumps require the removal of both cylinder heads to get at the suction check valves.

SUCTION and **DISCHARGE CHECK VALVES** are red brass, carefully machined and ground to fit the red brass valve seats on which they work. This ground joint is better than a valve with rubber or leather facing as it is more durable, and should it be necessary to regrind them, it is more easily and quickly done than cutting a leather or rubber washer to fit.

PLUNGER has two leathers, securely held in place. Leathers are high-grade cups of our own manufacture.

PISTON ROD is 11/16-inch brass covered to avoid rust and corrosion. **DRAINAGE PLUGS** are provided at the points necessary to completely drain the pump to prevent freezing.

When desired for use on Pressure System, we advise the use of our **INTAKE AIR VALVE,** which screws into the pump directly under the suction pipe, displacing the regular drainage plug which is threaded for ¼-inch pipe. The ball check in our intake air valve prevents water dripping when pump is at rest, and also prevents the admission of enough air to break the suction of water. Many years' experience has proven that our intake air valve will positively keep a pressure tank supplied with plenty of air, and its construction and location insure an ample supply of air so long as the pump is capable of pumping water.

All these pumps are suitable for wells or cisterns up to 25 feet deep, but we recommend that the vertical suction be not over 20 feet for most satisfactory results.

These pumps work very easily and are strong enough in every part to work against pressures exceeding 100 pounds, which is more than is required in pressure systems.

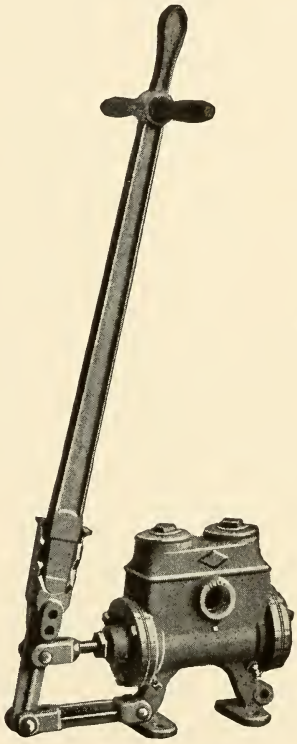
HORIZONTAL DOUBLE-ACTING FORCE PUMPS

FOR PRESSURE OR OPEN STORAGE TANKS

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 46

FIG. 46S



Above illustrations show two pumps which are exactly the same except as to the handles; Fig. 46 has a solid handle, while Fig. 46S has a removable handle. The two holes in the handle socket on Fig. 46S are for attachment of pump jack.

HANDLES can be placed at either end of pump by interchanging the cylinder heads.

When used on Pressure Tanks, remove the drainage plug under inlet or suction, and screw into the ¼-inch opening one of our Intake Air Valves.

We recommend this **INTAKE AIR VALVE** for supplying air to Pressure Tanks.

No.	Diameter Cylinder Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity Each Stroke gallons	Fig. 46 Iron	Fig. 46 Br. Ld.	Fig. 46S Iron	Fig. 46S Br. Ld.
2	2½	4	1¼	1	.085	**16.00**	**18.50**	**17.00**	**19.50**
4	3	4	1¼	1	.121	**18.00**	**21.00**	**19.00**	**22.00**
6	3½	4	1½	1¼	.166	**20.00**	**23.50**	**23.50**	**24.50**

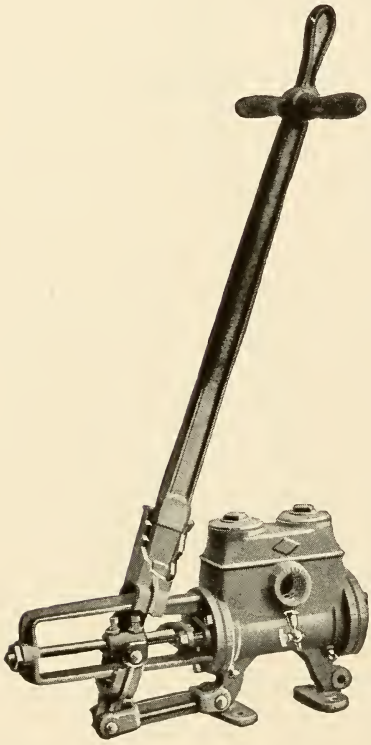
A small extra charge is made for Intake Air Valve.

HORIZONTAL DOUBLE ACTING FORCE PUMPS

FOR PRESSURE OR OPEN STORAGE TANKS

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 46 S-O



The illustration shows our Fig. 46 S-O Pump, which is very strong, simple, reliable, and easy to operate and keep in order.

One of the chief merits of this pump is the outrigger which guides the outer end of piston rod, keeping it in positive line, preventing wear at stuffing box and avoiding all cramping of piston rod. A removable brass bushing provides against wear at outer end of outrigger.

BRASS GLAND, fastened to cylinder head by two stud bolts, makes a far better stuffing box than the ordinary threaded brass stuffing box nut.

This pump has a socket handle, so that handle can be taken out when pump is not in use, and can be instantly put back without any screws or bolts when wanted. The handle can be placed at either end of pump by interchanging the cylinder heads, without disturbing the body of pump or connections. We can furnish handle socket drilled above outrigger for connection to cross head of pump jack.

INTAKE AIR VALVE, shown in cut, directly under inlet or suction, is only sent when especially ordered, and a small extra charge is made for it. Unless intake air valve is specified on order, regular drainage plug, threaded for ¼-inch pipe, comes with the pump. We recommend the use of our **INTAKE AIR VALVE** as the **BEST** and **SIMPLEST** method of supplying air to pressure tanks in connection with horizontal double-acting force pumps.

No.	Diameter Cylinder Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity Each Stroke Gallons	Iron	Brass Lined
2	2½	4	1¼	1	.085	**18.00**	**20.50**
4	3	4	1¼	1	.121	**20.00**	**23.00**
6	3½	4	1½	1¼	.166	**22.00**	**25.50**

A small extra charge is made for Intake Air Valve shown on Pump.

HORIZONTAL DOUBLE-ACTING PUMP

WITH AIR COMPRESSOR **FOR PRESSURE TANKS**

FIG. 46 AC

This illustrates our Horizontal Hand Force Pump with 1¼-inch Air Compressor, suitable for supplying water to pressure tanks from cisterns and shallow wells, not over 25 feet deep. As shown, the **AIR COMPRESSOR** is attached to the Outrigger Cap, and is operated by an arm connecting the Piston Rod of Pump to the Plunger Rod of Air Compressor. Air Cock, at the discharge end of Air Compressor, can be opened to permit the escape of air from Air Compressor when there is sufficient air in tank.

One of the chief merits of this pump is the outrigger which guides the outer end of the piston rod, keeping it in line, preventing wear at the stuffing box and avoiding all cramping of the piston rod. A removable brass bushing provides against wear at the outer end of outrigger.

CYLINDER AND VALVE CHAMBERS are a one-piece casting with the valves clustered above, so the pump cannot leak back or lose its priming.

VALVES are Cast Brass on Cast Brass Seats, thoroughly ground to a perfect fit and are accessible by unscrewing the Valve Caps above.

PISTON ROD is Brass Covered, guided by a brass bushing at the outer end. **PLUNGER** has 2 high-grade cupped leathers.

HANDLE can be removed from the socket when the pump is not in use.

BRASS GLAND, fastened to the cylinder head by 2 stud bolts, makes a far better stuffing box than the ordinary stuffing box nut.

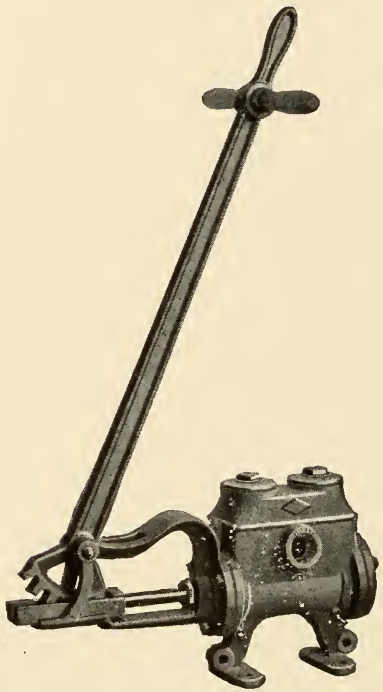
No.	Diam. Cylinder Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity Each Stroke Gallons	PRICE, EACH Iron	B. L.
2	2½	4	1¼	1	.085	**26.00**	**28.50**
4	3	4	1¼	1	.121	**28.00**	**31.00**
6	3½	4	1½	1¼	.166	**30.00**	**33.50**

RACK AND PINION HORIZONTAL DOUBLE ACTING FORCE PUMPS

FOR PRESSURE OR OPEN STORAGE TANKS

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 346



Above is shown our Fig. 346 Rack and Pinion Pump, which is adapted for Pressure Tank work, also for use about stores, factories, residences, etc.

The Rack and Pinion construction has advantages as follows: The **LEVERAGE** is greater than on other styles and as a consequence the pump works easier. The **PISTON ROD** and **PLUNGER** work in perfect alignment, thus avoiding friction and wear on the piston rod and stuffing box, and preventing all tendency to cramp or bend the piston rod.

Piston Rod is Brass Covered. Stuffing Nut is Brass. Handle can be placed at either end of pump by interchanging cylinder heads, without disturbing the body of the pump or connections.

When this pump is used on Pressure Tanks, remove the drainage plug under the inlet or suction and screw into the ¼-inch opening one of our **INTAKE AIR VALVES.** We recommend our **INTAKE AIR VALVE** as the **BEST** and **SIMPLEST** method of supplying air to pressure tanks in connection with Horizontal Double Acting Force Pumps. A small extra charge is made for Intake Air Valve.

No.	Diameter Cylinder Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity Each Stroke Gallons	PRICE, EACH Iron	Brass Lined
2	2½	4	1¼	1	.085	**17.50**	**20.00**
4	3	4	1¼	1	.121	**19.50**	**22.50**
6	3½	4	1½	1¼	.166	**21.50**	**25.00**

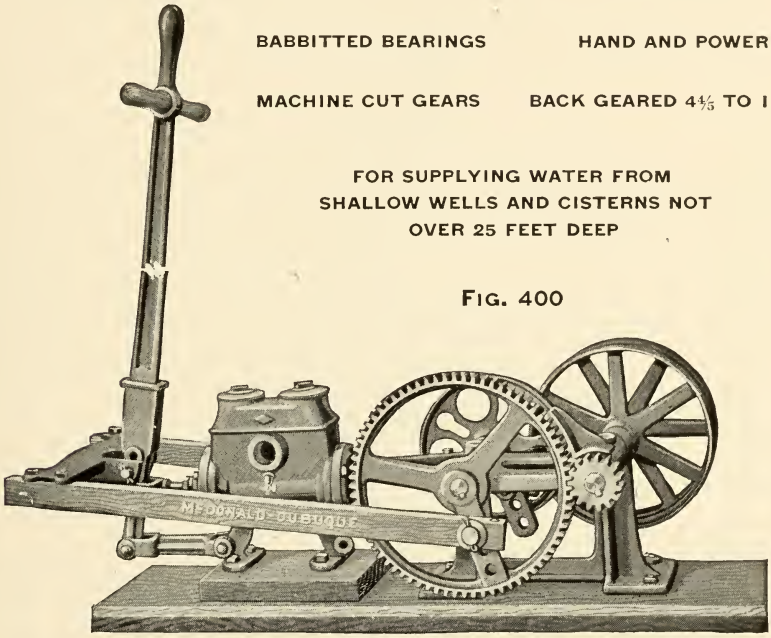
HORIZONTAL FORCE PUMP AND JACK

BABBITTED BEARINGS HAND AND POWER

MACHINE CUT GEARS BACK GEARED 4⅘ TO 1

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 400



This combination of Hand Pump with Power Jack provides a low priced, serviceable and practical power outfit, suitable for use with Gasoline Engine, Electric Motor or other power.

PNEUMATIC SYSTEMS may be equipped with this Pump Jack and Pump, as it is well suited to just such uses. **INTAKE AIR VALVE** is furnished to keep the tank supplied with air.

CYLINDER and **VALVE CHAMBERS** are cast in one piece, no horizontal joints to leak, and the Valves are above the Cylinder, so the Pump cannot lose its priming. **VALVES** are red cast brass, ground to a perfect fit on red brass seats, and are readily accessible by unscrewing the Valve Caps above. **PISTON ROD** is brass covered, 11/16-inch in diameter.

TIGHT AND LOOSE PULLEYS are cast iron, 12x2½-inch. **CONNECTING RODS** are hard maple.

PULLEY SHAFT and **GEAR SHAFT** are 1⅛ inches diameter, cold rolled steel, operating in **BABBITTED** solid boxes.

Length, 51 inches; Width, 20 inches; Height, 14½ inches (without handle).

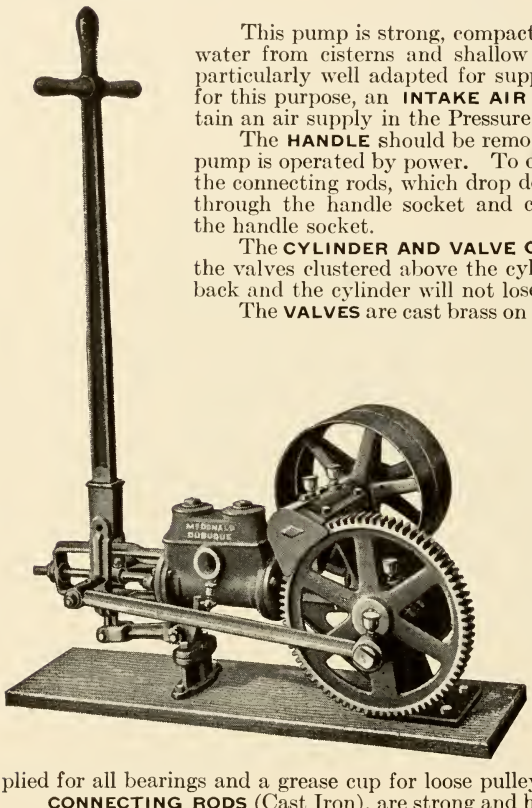
No.	Diameter Cylinder Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Weight Pounds	Price Iron	Price B. L.
2	2½	4	1¼	1	450	25	70	160	135	27.00	29.00
4	3	4	1¼	1	625	25	50	110	140	29.00	31.00
6	3½	4	1½	1¼	850	25	40	90	150	32.00	35.00

Capacity figured on the basis of 45 strokes per minute.

McDONALD POWER AND HAND PUMP

DOUBLE ACTING MOUNTED ON PLANK BACK GEARED 6 TO 1
MACHINE CUT GEARS BABBITTED BEARINGS
EXCEPTIONAL IN QUALITY MODERATE IN PRICE

FIG. 445



This pump is strong, compact and powerful, suitable for supplying water from cisterns and shallow wells not over 25 feet deep. It is particularly well adapted for supplying water to Pressure Tanks, and for this purpose, an **INTAKE AIR VALVE** is attached which will maintain an air supply in the Pressure Tank.

The **HANDLE** should be removed from the handle socket when the pump is operated by power. To operate by hand, remove the pin from the connecting rods, which drop down out of the way, then put the pin through the handle socket and cross head, and insert the handle in the handle socket.

The **CYLINDER AND VALVE CHAMBERS** is a one-piece casting, with the valves clustered above the cylinder so that the pump can not leak back and the cylinder will not lose its priming.

The **VALVES** are cast brass on cast brass seats; each being thoroughly ground to insure a tight fit; no rubber or leather facing to wear out and give trouble; valves are accessible by unscrewing the valve caps above.

The **PISTON ROD** is brass covered, 11/16 inch in diameter, guided by a brass bushing at the outer end to maintain alignment and minimize friction and wear at the stuffing box. The **PLUNGER** is fitted with double cupped leathers of superior quality.

MACHINE CUT GEAR with **STEEL PINION** insure durability and reasonably quiet operation.

TIGHT AND LOOSE PULLEYS are cast iron, 12 inches diameter x 3¼-inch face for use with 3-inch belt.

BRASS OIL CUPS are supplied for all bearings and a grease cup for loose pulley.

CONNECTING RODS (Cast Iron), are strong and heavy, Babbitted at crank pin bearing.

PULLEY SHAFT is 1⅛-inch in diameter, and **GEAR SHAFT** 1⅜ inches in diameter. Both operate in split Babbitted Bearings of ample length.

CRANK PINS are ⅞ inches diameter and **CROSS HEAD PIN** is ⅝-inch diameter.

DIMENSIONS—Length, 42 inches; Width, 21 inches; Height, 21 inches.

No.	Diam. Cyl. Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Shipping Weight Pounds	PRICE Iron	PRICE B. L.
2	2½	4	1¼	1	450	25	100	230	190	**37.00**	**39.00**
4	3	4	1¼	1	625	25	75	175	195	**38.00**	**40.00**
6	3½	4	1½	1¼	850	25	60	140	210	**41.00**	**44.00**

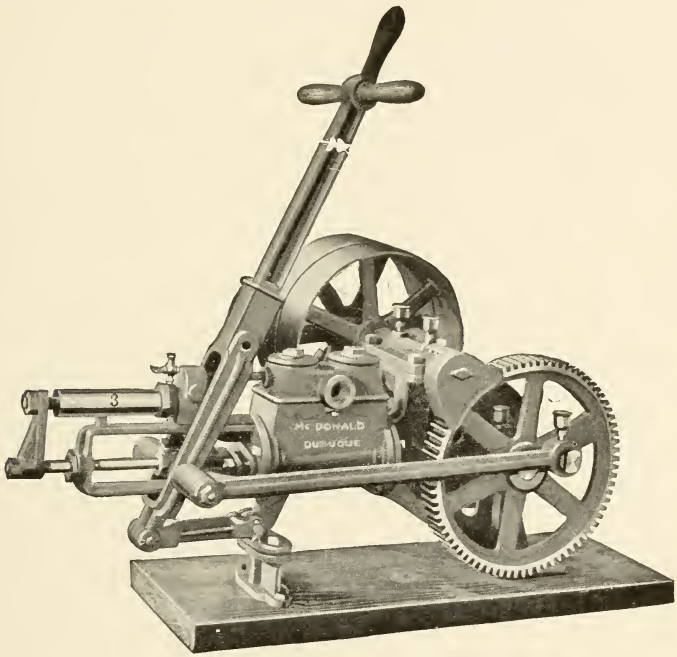
Capacity figured on a basis of 45 revolutions per minute, but the pump will work satisfactorily at 70 revolutions per minute, and of course have greater capacity.

The above ratings of working pressure, capacity, etc., can easily and safely be developed with the respective pumps and our 1½ H. P. Gasoline Engine.

McDONALD POWER AND HAND PUMP

DOUBLE-ACTING WITH AIR COMPRESSOR — **MOUNTED ON PLANK** — **BACK GEARED 6 TO 1 MACHINE CUT GEARS**

FIG. 445-AC.



This pump is strong, compact and powerful, suitable for supplying water to pressure tanks from cisterns and shallow wells not over 25 feet deep. It is equipped with an **AIR COMPRESSOR**, as shown, which will supply an ample amount of air to the tank.

AIR COMPRESSOR is 1¼-inch diameter, attached to the Outrigger Cap of Pump and is operated by an arm connecting Piston Rod of Pump to Plunger Rod of Air Compressor. Air Cock at the discharge end of the Air Compressor, can be opened to permit escape of air from Air Compressor when there is sufficient air in tank.

CYLINDER AND VALVE CHAMBERS are a one-piece casting, with the valves clustered above the cylinder so that the pump can not leak back and lose its priming.

VALVES are cast brass on cast brass seats; each being thoroughly ground to insure a tight fit. Valves are accessible by unscrewing the valve caps above.

PISTON ROD is brass-covered, 11/16 inch in diameter, guided by a brass bushing at the outer end to maintain alignment and minimize friction and wear at the stuffing box.

MACHINE CUT GEAR with **STEEL PINION** insures durability and reasonably quiet operation.

TIGHT AND LOOSE PULLEYS are cast iron, 12x3¼ inches.

CONNECTING RODS (Cast Iron), are strong, Babbitted at crank pin.

PULLEY SHAFT and **GEAR SHAFT** operate in split Babbitted Bearings.

DIMENSIONS—Length, 42 inches; Width, 21 inches; Height, 21 inches.

No.	Diam. Cyl. Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Shipping Weight Pounds	PRICE Iron	PRICE B. L.
2	2½	4	1¼	1	450	25	100	230	195	**42.50**	**44.50**
4	3	4	1¼	1	625	25	75	175	200	**43.50**	**45.50**
6	3½	4	1½	1¼	850	25	60	140	215	**46.50**	**49.50**

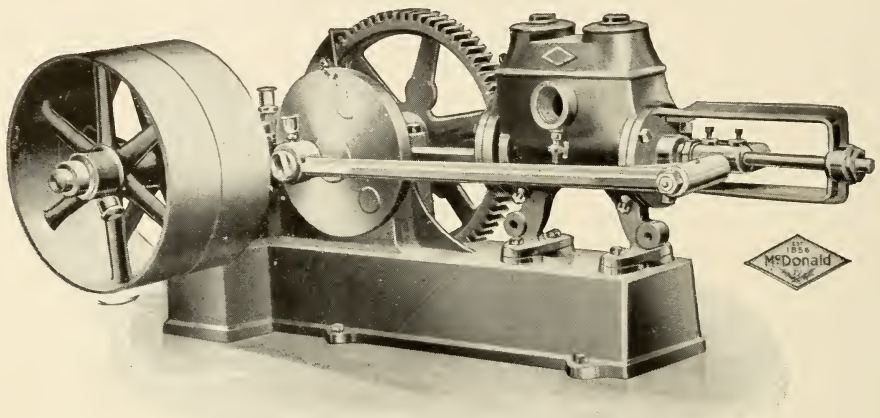
Capacity figured on a basis of 45 revolutions per minute. The above ratings of pressure, capacity, etc., can be developed with our 1½-H. P. Gasoline Engine.

McDONALD POWER PUMP

DOUBLE ACTING **MACHINE CUT GEARS** **BACK GEARED 6 TO 1**

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 446



This Pump is designed to meet the requirements of the trade for a compact, substantial, inexpensive Power Pump.

For pneumatic pressure systems it is equipped with an Intake Air Valve, which supplies air to the tank.

The **CYLINDER** and **VALVE CHAMBERS** are a one-piece casting, with the Valves clustered above the Cylinder so that the Pump can never leak back and the Cylinder will not lose its priming.

The **VALVES** are cast brass on cast brass seats; each being thoroughly ground to insure a tight fit. Valves are accessible by unscrewing Valve Caps above.

The **PISTON ROD** is brass covered, 11/16 inches in diameter, guided by Brass Bushings at the outer end.

MACHINE CUT GEAR and **STEEL CUT PINION** insure durability and reasonably quiet operation.

The **TIGHT AND LOOSE PULLEYS** are cast iron, 12 inches x 3¼ inches.

The **PULLEY SHAFT** and **GEAR SHAFT** operate in Split Babbitted Boxes.

The **CAST IRON BASE** on which the Pump, Pulleys and Gears are mounted, is neat and strong.

The above features embodied in this Power Pump make it the best, strongest, most efficient and durable on the market; suitable for operation by electric motor, gasoline engine or other power.

Dimensions — Base only: Length, 28½ inches; Width, 11½ inches.

Pump complete: Length, 45 inches; Width, 21 inches; Height, 17 inches.

No.	Diameter Cylinder Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Weight Pounds	Price Iron	Price B. L.
2	2½	4	1¼	1	450	25	100	230	190	**42.00**	**44.00**
4	3	4	1¼	1	625	25	75	175	210	**43.00**	**45.00**
6	3½	4	1½	1¼	850	25	60	140	220	**46.00**	**49.00**

HANDLE FOR OPERATION OF PUMP BY HAND, ADD TO LIST, 4.00.

The above ratings of working pressure and elevation can easily and safely be developed with the respective Pumps and a 1½ H. P. Gasoline Engine.

Capacity figured on a basis of 45 strokes per minute, but the Pump will work perfectly at 70 strokes per minute.

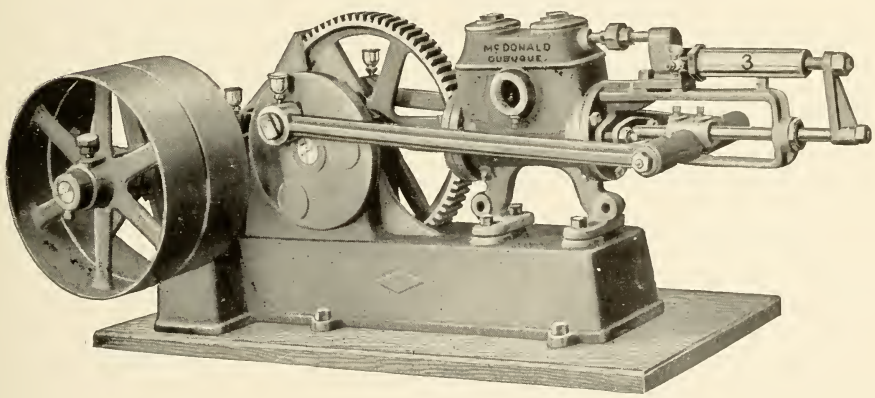
McDONALD POWER PUMP

DOUBLE ACTING **SPLIT BABBITTED BEARINGS** **BACK GEARED 6 TO 1**

WITH AIR COMPRESSOR **MACHINE CUT GEARS**

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 446 A. C.



This pump is designed to meet any demand for a shallow well Power Pump for supplying water to Pressure Tanks, being equipped with an **AIR COMPRESSOR**, 1¾ inches in diameter, which will supply an ample amount of air to the tank.

The **AIR COMPRESSOR** is attached to the Outrigger Cap of the Pump, and is operated by an arm connecting Piston Rod of Pump to Plunger Rod of Air Compressor. If there is sufficient Air in the Tank, the Air Cock can be opened, which will permit the air to escape through it.

CYLINDER and **VALVE CHAMBERS** are a one-piece casting with the Valves clustered above, so the pump cannot leak back or lose its priming.

VALVES are Cast Brass on Cast Brass Seats, thoroughly ground to a perfect fit, and are accessible by unscrewing the Valve Caps above.

PISTON ROD is Brass Covered, guided by a brass bushing at the outer end.

TIGHT and **LOOSE PULLEYS** are Cast Iron, 12 by 3¼ inches.

CAST IRON BASE on which the Pump, Pulleys and Gear are mounted is neat and strong.

This pump with Air Compressor is, in our opinion, the best on the market for Pressure Water Systems; suitable for operation by electric motor, gasoline engine or other power.

DIMENSIONS — Base only: Length, 28½ inches; Width, 11½ inches. Pump Complete — Length, 47 inches; Width, 21 inches; Height, 17 inches.

No.	Diam. Cyl. Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Shipping Weight Pounds	Price Iron	Price Brass-Lined
2	2½	4	1¼	1	450	25	100	230	200	48.00	50.00
4	3	4	1¼	1	625	25	75	175	215	49.00	51.00
6	3½	4	1½	1¼	850	25	60	140	230	52.00	55.00

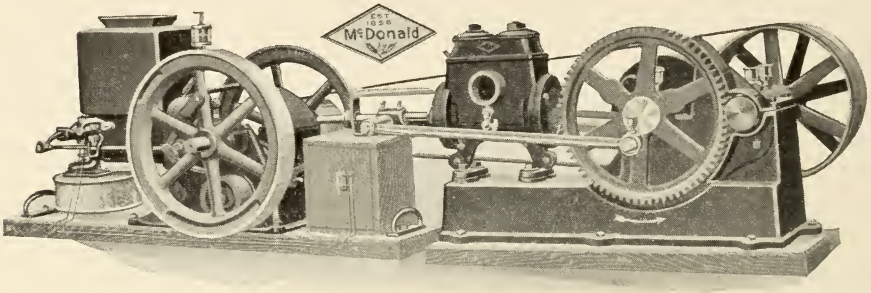
The above ratings of working pressure and elevation can easily and safely be developed with the respective pumps and a 1½ H. P. Gasoline Engine.

Capacity figured on a basis of 45 strokes per minute, but the pump will work perfectly at 70 strokes per minute.

McDONALD POWER PUMP

DOUBLE ACTING GASOLINE ENGINE DRIVE BACK GEARED 6 TO 1
MACHINE CUT GEARS
FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 446G



A reliable, inexpensive Power Pump in combination with a gasoline engine and for shallow well use; for elevating water to storage tank or forcing it horizontally and for every service about the house, factory or farm, it is always dependable and economical.

PNEUMATIC PRESSURE SYSTEMS are one of the many uses to which this Pump is adapted and being equipped with the **INTAKE AIR VALVE** will maintain the air supply in tank.

PUMP

CYLINDER is cast integral with valves clustered above, so that pump cannot leak back or lose its priming. **VALVES** are cast brass ground to a tight fit on **CAST BRASS SEATS.** **PISTON ROD** is brass covered. **BRASS DRAINAGE PLUGS** to drain every compartment of pump. **TIGHT AND LOOSE PULLEYS** 3¼-inch face x 12-inch diameter. **BRASS OIL CUPS** for all bearings. **CONNECTING RODS** (Cast Iron) are strong and heavy, babbitted at the crank pin bearing. **BABBITTED BOXES** throughout. **CAST IRON BASE** with lugs to bolt to floor or plank.

MACHINE CUT GEARS and **STEEL CUT PINION** are protected by Cast Iron Guards.

GASOLINE ENGINE

GASOLINE ENGINE is 1½ H. P., open jacket, horizontal, four cycle, hopper-cooled type and can be run continuously without danger of overheating. **CONNECTING ROD** has removable babbitt bushing and connecting rod cap is babbitt lined. **GEARS** are machine cut and located inside the main frame. **CRANKSHAFT PULLEY** is 5-inch diameter x 4¼-inch face, operating at a speed of 500 R. P. M. and belts direct to the Pump Pulley. **COPPER GASKET** between cylinder head and igniter body. **IGNITER** is of the make and break type. **GASOLINE TANK** holds one gallon, sufficient for one day's run. **GOVERNOR** is of the single weight type acting perfectly even under varying load, cutting out ignition and shutting off fuel supply when running light.

Pump, 1½ H. P. Gasoline Engine (mounted on skid and with Batteries, Oil Cups, Muffler and Wrenches) and 12 feet of 3-inch high-grade Leather Belt, complete as shown:

No.	Diameter Cylinder Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Weight Pounds	Price Iron	Price B. L.
2	2½	4	1¼	1	360	25	100	230	525	**129.00**	**131.00**
4	3	4	1¼	1	510	25	75	175	530	**130.00**	**132.00**
6	3½	4	1½	1¼	700	25	60	140	555	**133.00**	**136.00**

HANDLE, HANDLE SOCKET AND FULCRUM FOR OPERATION OF PUMP BY HAND, ADD TO LIST, ANY SIZE, 4.00

The above ratings of working pressure and elevation can easily and safely be developed with the respective pumps and our 1½ H. P. Gasoline Engine.

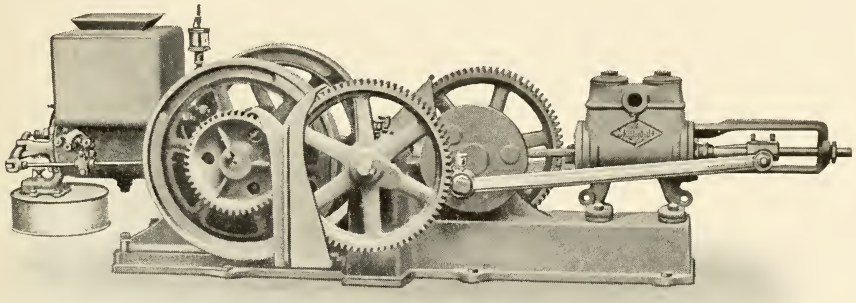
Capacity figured on the basis of 35 strokes per minute or a pulley speed of 210 revolutions per minute.

McDONALD POWER PUMP

GASOLINE DRIVE DIRECT CONNECTED DOUBLE ACTING

MACHINE CUT GEARS SPLIT BABBITTED BOXES

FIG. 446 D-G



A good, serviceable Power Pump, connected direct to Gasoline Engine, for use on shallow wells and cisterns (not over 25 feet vertical suction) to supply water to storage and pressure tanks, or forcing it through pipes to any desired point.

PUMPS AND ENGINE are mounted on a neat and strong cast iron base, making of Pump and Engine an attractive and compact unit.

MACHINE CUT GEARS on Pump and Engine insure durability and quiet operation.

PUMP

CYLINDER is cast integral with the valve chamber, with the valves above it, so that the pump cannot lose its priming. **VALVES** are cast brass, ground to fit on cast brass seats. **PISTON ROD** is brass covered. **INTAKE AIR VALVE** is furnished to supply air to Pressure Tank Systems.

GASOLINE ENGINE

This is a 1½ H. P. Open Jacket, Horizontal, Four Cycle, Hopper Cooled Type. Igniter is of the Make and Break Type. Gasoline Tank holds one gallon, sufficient for one day's run.

Dimensions: Base only: Length, 49 inches; Width, 13 inches. Pump and Engine complete: Length, 72 inches; Width, 22 inches; Height, 21 inches.

No. of Pump	Diam. Cyl. Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Shipping Weight Pounds	Price Iron	Price Brass Lined
2	2½	4	1¼	1	500	25	100	230	550	133.00	135.00
4	3	4	1¼	1	720	25	75	175	560	135.00	137.00
6	3½	4	1½	1¼	960	25	60	140	580	137.00	140.00

HANDLE FOR OPERATION BY HAND, ADD TO LIST PRICE, 4.00.

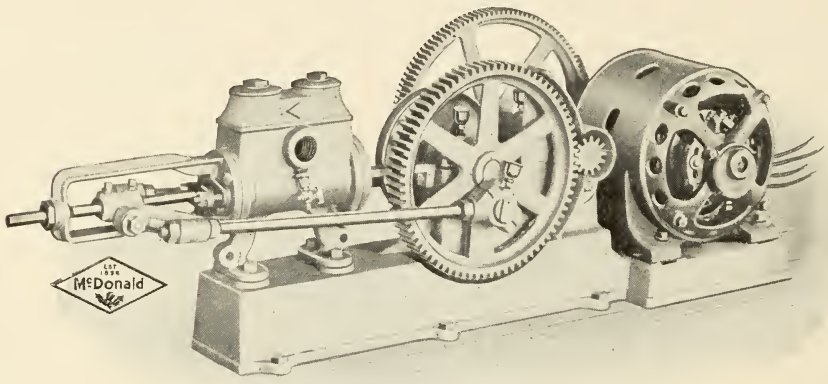
The above tables of capacities and pressures are based on **50 STROKES PER MINUTE**, which is the speed at which pump is operated or driven by the engine.

McDONALD POWER PUMP

ELECTRIC DRIVE
DIRECT CONNECTED

DOUBLE ACTING
MACHINE CUT GEARS

FIG. 446 E-D



A good, serviceable Power Pump, connected direct to Electric Motor, for use on shallow wells and cisterns (not over 25 feet vertical suction) to supply water to storage and pressure tanks, or to force it through pipes to any desired point. **PUMP AND ELECTRIC MOTOR** are mounted on a neat and strong cast iron base, **MACHINE CUT GEARS** on Pump and **RAWHIDE PINION** on Motor insure durability and quiet operation.

PUMP

CYLINDER is cast integral with the valve chamber, with the valves above it, so that the pump cannot lose its priming. **VALVES** are cast brass, ground to fit on cast **BRASS SEATS.** **PISTON ROD** is brass covered. **SPLIT BABBITTED BOXES** throughout.

ELECTRIC MOTORS

Illustration shows a Self-starting, Constant Speed Electric Motor, Single Phase, Alternating Current, 60 Cycle, 110-220 Volt, 1750 revolutions per minute, either ½, ¾ or 1 Horsepower. See list below.

Dimensions—Base only: Length, 42 inches; Width, 13 inches. Pump complete with Motor: Length, 55½ inches; Width, 17 inches; Height, 17½ inches.

Horse Power Motor	No. of Pump	Diam. Cyl. In.	Stroke In.	Suction In.	Discharge In.	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Ship. Wt. Lbs.	PRICE Iron	PRICE B. L.
½	2	2½	4	1¼	1	500	25	50	115	390	**153.00**	**155.00**
¾	2	2½	4	1¼	1	500	25	100	230	400	**172.00**	**174.00**
¾	4	3	4	1¼	1	720	25	70	155	405	**174.00**	**176.00**
1	4	3	4	1¼	1	720	25	100	230	410	**185.00**	**187.00**
¾	6	3½	4	1½	1¼	960	25	40	90	415	**177.00**	**180.00**
1	6	3½	4	1½	1¼	960	25	65	145	420	**188.00**	**191.00**

In ordering be sure to state Horsepower of Motor, Number and Kind of Pump.

HANDLE FOR OPERATION BY HAND, ADD TO LIST PRICE, 4.00.

The above table of capacities and pressures are based on 50 strokes per minute, which is the speed at which motor will drive the pump.

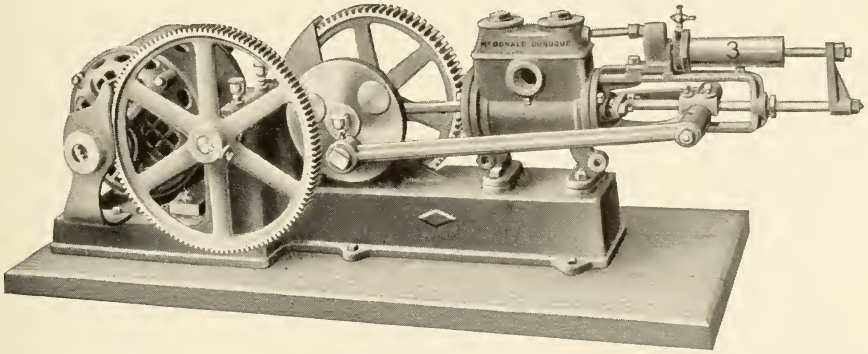
McDONALD POWER PUMP

ELECTRIC DRIVE — DOUBLE ACTING

DIRECT CONNECTED — MACHINE CUT GEARS

FOR PRESSURE TANK SYSTEMS

FIG. 446 A. C. E.



A good serviceable Power Pump, connected direct to Electric Motor for use on shallow wells and cisterns (not over 25 feet vertical suction) to supply water to pressure tanks.

PUMP AND ELECTRIC MOTOR are mounted on a neat and strong cast iron base. **MACHINE CUT GEARS** on Pump and **RAWHIDE PINION** on Motor insure durability and quiet operation.

PUMP

CYLINDER AND VALVE CHAMBERS are a one piece casting with the Valves clustered above, so the pump cannot leak back or lose its priming. **VALVES** are Cast Brass, ground to a perfect fit on Cast Brass Seats, and are accessible by unscrewing the Valve Caps above. **PISTON ROD** is Brass Covered. **GEAR SHAFTS** operate in Split Babbitted Boxes.

AIR COMPRESSOR is operated by an arm connecting Piston Rod of Pump to Plunger Rod of Air Compressor. **AIR COMPRESSOR** is 1¾-inch **DIAMETER** and will maintain an ample Air Supply in the Pressure Tank.

ELECTRIC MOTORS

Illustration shows a Self Starting, Constant Speed Electric Motor, Single Phase, Alternating Current, 60 Cycle, 110-220 Volt, 1750 Revolutions per minute, either ½, ¾ or 1 Horsepower. See list below.

DIMENSIONS — Base only: Length 42 inches; Width 13 inches. Pump complete with motor: Length 55½ inches; Width, 17 inches; Height, 17½ inches.

Horse Power Motor	No. of Pump	Diam. Cyl. In.	Stroke In.	Suction In.	Discharge In.	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure, Pounds	Elevation Feet	Ship. Wt. Lbs.	PRICE Iron	PRICE B. L.
½	2	2½	4	1¼	1	500	25	50	115	390	158.50	160.50
¾	2	2½	4	1¼	1	500	25	100	230	400	177.50	179.50
¾	4	3	4	1¼	1	720	25	70	155	405	179.50	181.50
1	4	3	4	1¼	1	720	25	100	230	410	190.50	192.50
¾	6	3½	4	1½	1¼	960	25	40	90	415	182.50	185.50
1	6	3½	4	1½	1¼	960	25	65	145	420	193.50	196.50

In ordering be sure to state Horse power of Motor, Number and Kind of Pump. The above table of capacities and pressures are based on 50 strokes per minute, which is the speed at which motors will drive the pump.

HORIZONTAL TANK PUMP AND JACK

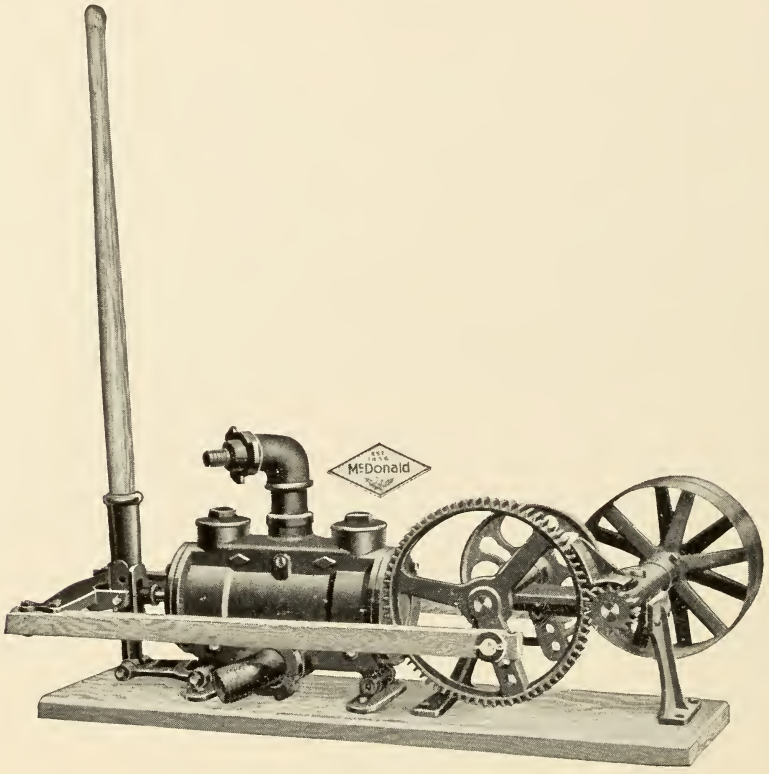
DOUBLE-ACTING

BABBITTED BEARINGS

MACHINE CUT GEARS

BACK GEARED 4⅘ TO 1

FIG. 437



DOUBLE-ACTING FORCE PUMP for heavy and continuous duty, 5-inch cylinder by 5-inch stroke. **SUCTION AND DISCHARGE VALVES** are rubber faced. **BRASS VALVE SEATS** to prevent corrosion and rust. **PISTON ROD** ⅞-inch cold rolled steel. **STUFFING BOX NUT** is cast brass. **SUCTION** threaded 2-inch female for iron pipe and fitted with 45 degree union for 2-inch suction hose. **DISCHARGE** threaded 2-inch female for iron pipe with nipple and street ell, giving 2-inch male iron pipe thread and fitted with union for 1-inch discharge hose.

PUMP JACK has heavy cast iron frame, cast in one piece, carrying the pulleys and gears. **TIGHT AND LOOSE PULLEYS** are cast iron 12x2½ inches. **CONNECTING RODS** are hard maple. By pinning Crosshead to the upper hole of handle socket, the stroke is reduced to 4 inches.

Length 51 inches. Width 20 inches. Height 21 inches (without handle).

Diam. Cyl. Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suction Lift Feet	Working Pressure Pounds	Elevation Feet	Weight Pounds	PRICE Iron	PRICE B. L.
5	5	2	2	2050	25	35	75	185	32.00	38.00

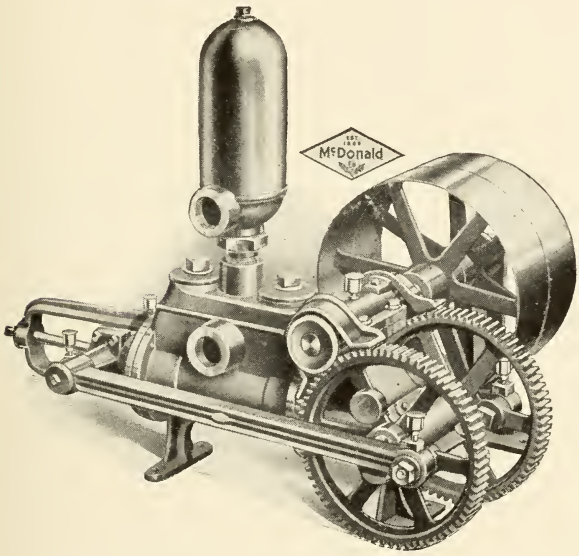
Capacity figured on the basis of 40 strokes per minute.

McDONALD POWER PUMP

DOUBLE-ACTING **SPLIT BABBITTED BEARINGS**

MACHINE CUT GEARS **BACK GEARED 4 TO 1**

FIG. 447



These pumps are adapted for use in mills or factories and for tank service, irrigation and general water supply. They are also valuable for fire protection. They are strongly built, compact and highly efficient. Suitable for shallow wells, cisterns, etc., not exceeding 25 feet in depth and recommended for service not in excess of the ratings scheduled below, though we have tested them for higher duty without developing weakness.

CYLINDER and valve chambers is a one-piece casting without horizontal joints, and both sets of valves being above the cylinder the water cannot leak back nor the cylinder lose its priming. **BRASS DRAINAGE PLUGS** drain all compartments and prevent damage by freezing. **VALVES** are heavy red cast brass on red cast brass seats; each thoroughly ground to insure a perfect fit. **VALVE CAPS,** on either side of air chamber, give access to valves without disturbing the pump or its connections. **TOBIN BRONZE PISTON ROD** is ⅞-inch diameter, guided at the extreme end by a brass bushing to insure alignment and minimize frictional wear and leakage at the stuffing box. **AIR CHAMBER** connected to pump by standard wrought nipple can be turned to discharge in any direction.

TIGHT AND LOOSE PULLEYS are cast iron, 4½x16x1½-inch bore, and a substantial supporting leg at the outer end to remove all side strain from the pump.

CONNECTING RODS are heavily ribbed cast iron and, being straight, will not break under heavy duty. End at wrist pin is slotted to take up wear and has 1½-inch bearing, with brass oil cup to lubricate, and 2⅛-inch bearing at cross head with brass oil cup.

These pumps are of large capacity, strong, durable and highly efficient; suitable for Gasoline Engine, Electric Motor or shaft drive and we recommend a pulley speed of 180 revolutions per minute, which will give the pump 45 strokes per minute.

Dimensions.—Length 54 inches; Width 28 inches; Height, including air chamber, 34 inches.

No.	Diam. Cyl. Inches	Stroke Inches	Suction In.	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Weight Pounds	Price Iron	Price B. L.
10	5	5	2	2	2200	25	75	170	340	**60.00**	**70.00**
12	6	6	3	2½	3900	25	60	135	385	**100.00**	**115.00**

Capacity per hour is based on 40 strokes per minute.

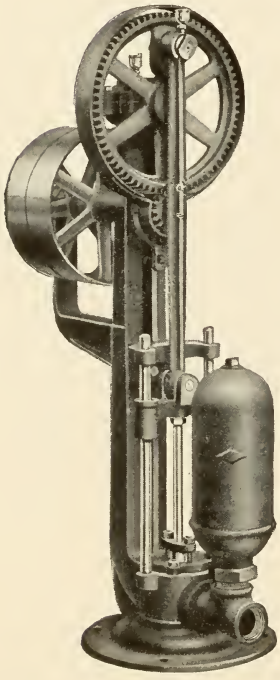
It will require 4 horsepower to operate No. 10 pump and 5 horsepower to operate No. 12 pump 40 strokes per minute against 60 pounds pressure.

Intake Air Valve can be furnished to supply air for pressure tanks. Add to list for Intake Air Valve 1.50.

McDONALD POWER WORKING HEAD

BABBITTED BOXES 6 AND 8-INCH STROKE BACK GEARED 5½ TO 1

FIG. 410



The illustration shows the general construction details of this Power Working Head, which is designed for moderate service, and having been thoroughly tested is recommended for wells of varying depths and sizes of cylinders. It is suitable for wells 200 feet deep with 2¾-inch cylinder or smaller cylinders in deeper wells. If used to supply a pressure tank, it is suitable for a 2¾-inch cylinder in a well 100 feet deep against a 45 pound tank pressure.

FRAME is strong and neat in design, thoroughly re-enforced to withstand all strain. Regularly tapped for 3-inch well or suction pipe and 2-inch discharge pipe. Base is drilled for four ½-inch bolts or lag screws. **AIR CHAMBER** 2-inch discharge and of ample capacity to insure a steady stream. **STUFFING BOX**, can be removed, giving 3-inch clearance for the withdrawal of plunger and rod. **BRASS PACKING GLAND** is fastened to stuffing box by two 7/16-inch studs and nuts.

BRASS COVERED PISTON ROD is 13/16-inch by 18 inches, threaded at lower end for 7/16-inch rod and ⅜-inch pipe, (can be threaded for ⅝-inch box pin coupling when so ordered without extra charge). **GUIDE RODS** are ¾-inch by 18-inch cold rolled steel, held rigidly in position by a bracket bolted to the frame.

CROSS HEAD has babbitted bearings, 2 inches deep, to work on the ¾-inch guide rods. **CONNECTING ROD** is cast iron, heavily ribbed, connected to gear by 1-inch crank pin and to cross head by ¾-inch pin. **CRANK PIN** is 3½ inches long by 1 inch diameter, fastened with 1 by ¾-inch hexagon nut.

MACHINE CUT GEAR is 13 inches in diameter by 1½-inch face with 1½-inch by 5-inch shaft operating in a split babbitted box. **PINION** is keyed to the 1⅛-inch cold rolled steel driving shaft. **TIGHT AND LOOSE PULLEYS** 3-inch face by 12-inch diameter. **CAST IRON GUARD** with wrought iron band throughly houses and protects gear and pinion to prevent injury.

BRASS OIL CUPS at all shaft bearings.

Height, 46 inches; width, 14 inches; length, 28 inches; diameter of base, 14 inches; net weight, 215 pounds.

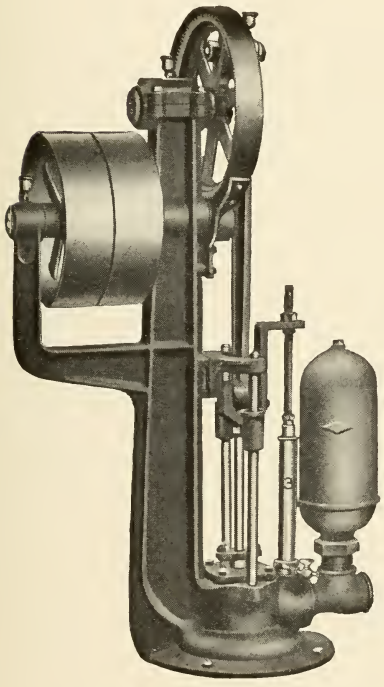
Price..... 55.00

McDONALD POWER WORKING HEAD

BABBITTED BOXES | 6 AND 8-INCH STROKE | BACK GEARED 5½ TO 1

AIR COMPRESSOR ATTACHED | MACHINE CUT GEARS | FOR DEEP WELLS

FIG. 410 A-C



The illustration shows the general construction details of this Power Working Head which is designed for moderate service and having been thoroughly tested is recommended for wells of varying depths and sizes of cylinder. It is suitable for wells 100 feet deep with 2¾-inch cylinders, or deeper wells, with smaller cylinders against a tank pressure of 45 pounds.

The **AIR COMPRESSOR**, shown behind the air chamber, is strong, simple and serviceable. It has been thoroughly tested and will maintain an ample supply of air in pressure tank. It is provided with a cock, which is to be opened when there is enough air in pressure tank. It is necessary, in any air compressor, to have the plunger go to bottom of cylinder to make complete discharge of air in the cylinder, so the upper end of plunger rod has a running thread and locknut for adjusting the length of stroke of Air Compressor.

The Air Compressor is operated by a bracket arm, which is connected to the crosshead as shown.

FRAME is strong and neat in design, thoroughly reinforced to withstand all strain. Regularly tapped for 3-inch well or suction and 2-inch discharge pipe. Base is drilled for four ½-inch bolts or lag screws. **AIR CHAMBER**, 2-inch discharge and of ample capacity to insure a steady stream. **STUFFING BOX** can be removed, giving 3-inch clearance for the withdrawal of plunger and rod. **BRASS PACKING GLAND** is fastened to stuffing box by two 7/16-inch studs and nuts.

BRASS COVERED PISTON ROD is 13/16 inch by 18 inches, threaded at lower end for 7/16-inch rod and ⅜-inch pipe (can be threaded for ⅝-inch box pin coupling when so ordered without extra charge). **GUIDE RODS** are ¾-inch by 18-inch cold rolled steel, held rigidly in position by a bracket bolted to the frame.

CROSSHEAD has babbitted bearings, 2 inches deep, to work on the ¾-inch guide rods. **CONNECTING ROD** is cast iron, heavily ribbed, connected to gear by 1-inch crank pin and to crosshead by ¾-inch pin. **CRANK PIN** is 3½ inches long by 1-inch diameter, fastened with 1x¾-inch hexagon nut.

MACHINE CUT GEAR is 13-inch diameter by 1½-inch face with 1½-inch by 5-inch shaft operating in a split babbitted box. **PINION** is keyed to the 1⅛-inch cold rolled steel driving shaft. **TIGHT AND LOOSE PULLEYS** 3-inch face by 12-inch diameter. **CAST IRON GUARD** with wrought iron band thoroughly houses and protects gear and pinion to prevent injury.

BRASS OIL CUPS at all shaft bearings.

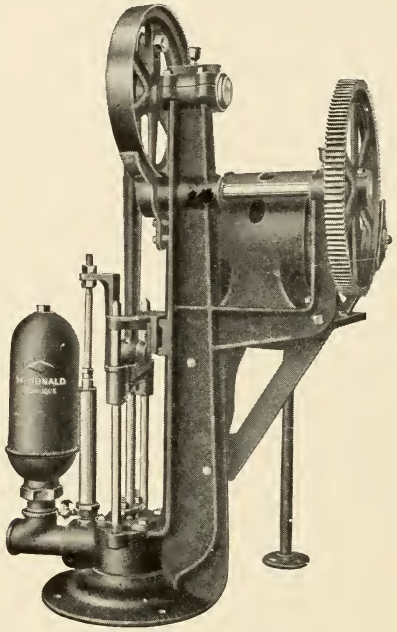
Height, 46 inches; Width, 14 inches; Length, 28 inches; Diameter of base, 14 inches; Net weight, 215 lbs.

Price..... 67.00

McDONALD POWER WORKING HEAD

AIR COMPRESSOR ATTACHED FOR DEEP WELLS MACHINE CUT GEARS
ELECTRIC DRIVE 6 AND 8-INCH STROKE BABBITTED BOXES

FIG. 410 AC-E



This illustrates our Fig. 410 AC-E Power Working Head, direct geared to electric motor, and adapted for deep well service requiring not more than 1 horse power to o erate.

GEARING is all machine cut from the solid. **RAWHIDE** or **CLOTH PINION** on motor, extra, to order. All gearing protected by guards. **FRAME** is strong and neat in design. Regularly tapped for 3-inch well or suction pipe, and 2-inch discharge. **BABBITTED BEARINGS** throughout, with main shaft operating in two split boxes. **STUFFING BOX** is removable, giving a 3-inch opening for withdrawal of plunger and rod. **BRASS PACKING GLAND** has bolt adjustment.

BRASS COVERED PISTON ROD is $^{13}/_{16}$-inch in diameter, threaded at lower end for both $^{7}/_{16}$-inch rod and $^{3}/_{8}$-inch pipe. Also can be furnished for $^{5}/_{8}$ or $^{7}/_{8}$-inch Box Pin Coupling. **CROSSHEAD** has babbitted bearings working on $^{3}/_{4}$-inch Steel Guide Rods. **CONNECTING ROD** is cast iron, of ample strength, connected to main gear by 1-inch Steel Crank Pin, and to Crosshead by $^{3}/_{4}$-inch steel pin. **AIR COMPRESSOR** is strong and serviceable, and will maintain sufficient air supply in pressure tank.

SPEED is normally about 40 revolutions per minute, which is best for satisfactory operation.

OVER-ALL DIMENSIONS—Height, 46 inches; width, 21 inches; length, 33 inches; net weight, without motor, 285 pounds.

Information and prices on this Working Head with Electric Motor, which is bolted to shelf rigidly fastened to main frame, will be furnished on request. Can furnish either $^{3}/_{4}$, or 1-horse power motor, depending on depth and diameter of well, amount of water desired and pressure required. In writing, also state electrical conditions.

Price, without Electric Motor **97.00**

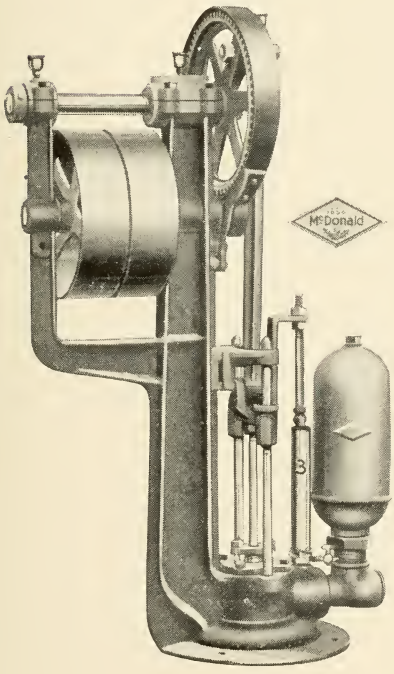
If without Air Compressor, deduct 12.00.

Automatic Switch for starting and stopping motor at any desired pressure can be furnished.

McDONALD POWER WORKING HEAD

BABBITTED BOXES FOR DEEP WELLS — 6 AND 8-INCH STROKE — BACK-GEARED 5½ TO 1 — AIR COMPRESSOR ATTACHED — MACHINE CUT GEARS

FIG. 411 AC



This illustration shows another type of the McDonald Power Working Head, built for moderate deep well service. It is suitable for wells 150 feet deep with 2¾-inch cylinder, or for deeper wells with smaller cylinders.

FRAME is tapped for 2¾-inch well or suction pipe and 2-inch discharge pipe. **AIR CHAMBER** has a capacity of approximately 250 cubic inches, and is tapped for 2-inch discharge. Fitted with **MACHINE CUT GEAR** and **PINION**, protected with cast iron guard and wrought iron band.

GEAR SHAFT, as shown, operates in two split babbitted boxes, which hold it in line and prevent excessive wear on either gear or boxes.

AIR COMPRESSOR has been thoroughly tested, and will maintain an ample air supply in pressure tank. It is provided with a cock to expel the air when not needed in the system; a strong bracket arm connected to the cross head operates this Compressor, which can be adjusted to either the 6-inch or 8-inch stroke of the Working Head.

All bearings are well babbitted, and the head is equipped with Brass Packing Gland, removable Stuffing Box for the withdrawal of plunger; **BRASS COVERED PISTON ROD** 13/16-inch by 18 inches threaded for 7/16-inch rod and 3/8-inch pipe, but can be threaded for 5/8-inch Box Pin Coupling when so ordered without extra charge; ¾-inch Steel Guide Rods; **BABBITTED CROSS HEAD**; 3-inch by 12-inch Tight and Loose Cast Iron Pulleys, and **BRASS OIL CUPS** at all shaft bearings.

Height, 46 inches; Width, 14 inches; Length, 28 inches; Diameter of base, 14 inches; net weight, 235 pounds.

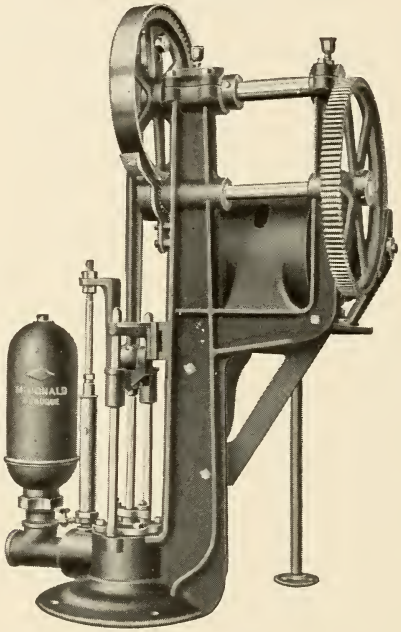
Price..... 80.00

If without Air Compressor, deduct from list, 12.00.

McDONALD POWER WORKING HEAD

ELECTRIC DRIVE — 6 AND 8-INCH STROKE — BABBITTED BOXES
AIR COMPRESSOR ATTACHED — MACHINE CUT GEARS

FIG. 411 AC-E



This illustrates our Fig. 411 AC-E Power Working Head, direct geared to electric motor, and adapted for deep well service requiring not more than 1 horse power to operate.

GEARING is all machine cut from the solid. **RAWHIDE** or **CLOTH PINION** on motor, extra, to order. All gearing protected by guards. **FRAME** is strong and neat in design. Regularly tapped for 3-inch well or suction pipe, and 2-inch discharge. **BABBITTED BEARINGS** throughout, with main shaft operating in two split boxes. **STUFFING BOX** is removable, giving a 3-inch opening for withdrawal of plunger and rod. **BRASS PACKING GLAND** has bolt adjustment.

BRASS COVERED PISTON ROD is $^{13}/_{16}$ inch in diameter, threaded at lower end for both $^{7}/_{16}$-inch rod and $^{3}/_{8}$-inch pipe, but can be threaded for $^{5}/_{8}$-inch Box Pin Coupling when so ordered without extra charge. **CROSSHEAD** has babbitted bearings working on $^{3}/_{4}$-inch Steel Guide Rods. **CONNECTING ROD** is cast iron, of ample strength, connected to main gear by 1-inch Steel Crank Pin, and to Crosshead by $^{3}/_{4}$-inch steel pin. **AIR COMPRESSOR** is strong and serviceable, and will maintain sufficient air supply in pressure tank.

SPEED is normally about 40 revolutions per minute, which is best for satisfactory operation.

OVER-ALL DIMENSIONS — Height, 46 inches; Width, 21 inches; Length, 31 inches; net weight, without motor, 305 pounds.

Information and prices on this Working Head with Electric Motor, which is bolted to shelf rigidly fastened to main frame, will be furnished on request. Can furnish either $^{3}/_{4}$, or 1-horse power motor, depending on depth and diameter of well, amount of water desired and pressure required. In writing, also state electrical conditions.

Price, without Electric Motor **110.00**

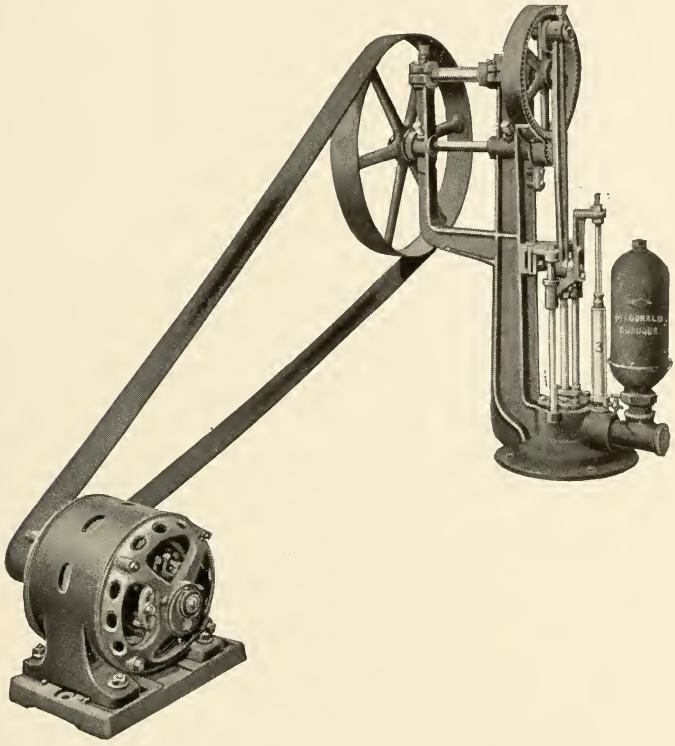
If without Air Compressor, deduct 12.00

Automatic Electric Switches for starting and stopping motor at any desired pressure can be furnished.

McDONALD POWER WORKING HEAD

BABBITTED BEARINGS — MACHINE CUT GEARS — BACK GEARED 5½ TO 1
6 AND 8 INCH STROKE — AIR COMPRESSOR ATTACHED

FIG. 411 BE



This illustrates our Fig. 411 B E Power Working Head equipped with 24 inches x 3½ inches tight pulley, adapted for deep well service requiring not more than 1 horse power to operate. It can be furnished with any size pulley up to 36 inches in diameter, to meet speed requirements. An Electric Motor running at 1750 R. P. M. with a 3-inch pulley will operate the Working Head 40 up strokes per minute, while a 1165 R. P. M. motor with a 4-inch pulley will operate the Head 35 up-strokes per minute. Maximum Speed is about 40 up strokes per minute.

FRAME is regularly tapped for 3-inch suction pipe and 2-inch discharge pipe. **STUFFING BOX** is removable, giving 3-inch opening for withdrawal of plunger and rod. **BRASS PACKING GLAND** has bolt adjustment. Main shaft operates in two split boxes.

BRASS COVERED PISTON ROD is $\frac{3}{16}$-inch in diameter, threaded at lower end for both $\frac{7}{16}$-inch rod and $\frac{3}{8}$-inch pipe coupling. Can also be threaded for $\frac{5}{8}$-inch Box Pin Coupling. **AIR COMPRESSOR** will maintain sufficient air in tank.

OVER-ALL DIMENSIONS — Height, 46 inches; Width, 24 inches; Length, 31 inches; Diameter of Base, 14 inches; Net Weight, 240 pounds.

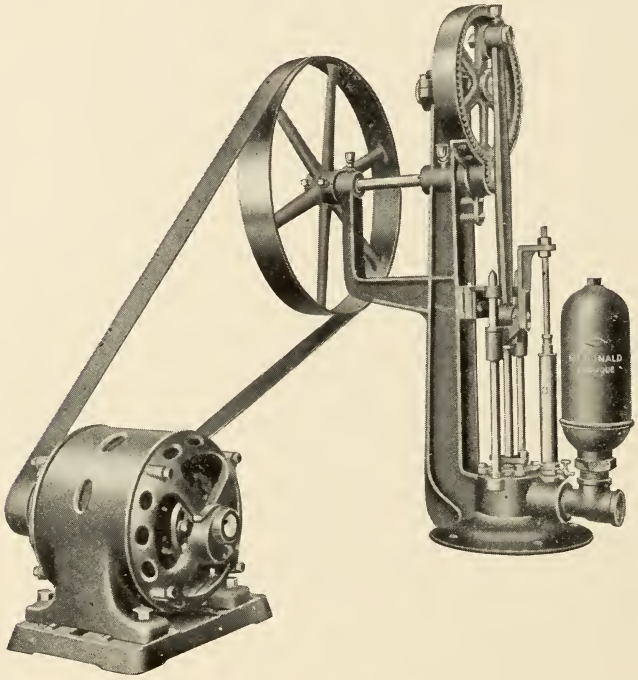
Price, without Motor or Belt..... 80.00

If without Air Compressor, deduct 12.00.

McDONALD POWER WORKING HEAD

BABBITTED BOXES — 6 AND 8 INCH STROKE — BACK GEARED 5½ TO 1
AIR COMPRESSOR ATTACHED — MACHINE CUT GEARS

FIG. 412 A-C



This illustrates a McDonald Power Working Head equipped with 24x3½-inch tight pulley only, and intended for light work, not to exceed 1 H. P. It can be furnished with any size pulley up to 36 inches in diameter to meet speed requirements. Electric Motor operating at 1750 R. P. M., with 3-inch driving pulley, will give 40 strokes per minute, while Electric Motor operating 1165 R. P. M., with 4-inch driving pulley, will give 36 strokes per minute. Maximum Speed is about 40 up-strokes per minute.

The Working Head is not intended for use on deep wells nor for high pressure, but for shallow wells which are too deep for horizontal force pumps.

FRAME is tapped for 3-inch well or suction pipe and 2-inch discharge pipe. **AIR CHAMBER** is tapped for 2-inch discharge

AIR COMPRESSOR has been thoroughly tested, and will maintain an ample supply of air in pressure tank. It is provided with a pet cock, which permits the escape of air when not needed in tank. A strong bracket arm, connected to the Crosshead, operates the Compressor, which can be adjusted to either the 6 or 8-inch stroke of the Working Head. **STUFFING BOX** is removable, permitting withdrawal of plunger, and fitted with **BRASS PACKING GLAND.** **BRASS COVERED PISTON ROD,** $\frac{13}{16}$x18 inches, threaded for $\frac{7}{16}$-inch rod and for $\frac{3}{8}$-inch pipe.

Dimensions.—Height. 46 inches; Width, 24 inches; Length, 31 inches; Diameter of base, 14 inches; shipping weight, 260 pounds.

Price, without Motor or Belt..... **67.00**

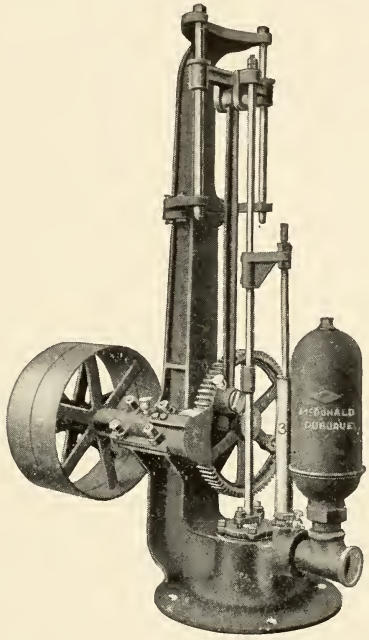
If without Air Compressor, deduct 12.00.

McDONALD POWER WORKING HEAD

SPLIT BABBITTED BEARINGS
6, 8, 10-INCH STROKE

FIG. 413 AC

BACK GEARED 5½ TO 1
MACHINE CUT GEARS



This cut shows a McDonald Power Working Head, for belt drive from engine, motor or line shaft. It is designed for deep well service, requiring not more than 2 horse power, and will operate a 2¾-inch cylinder in a well 250 feet to water.

STANDARD consists of two parts, as shown, the lower section of which contains the Bearings, and pipe connections, while the upper section contains the Crosshead Guide. **SPLIT BABBITTED BEARINGS**, with removable caps, are cast integral with lower section, thus insuring rigidity and proper alignment of bearing. **CROSSHEAD** has Babbitted Bearings working on ¾-inch Steel Guide Rods.

PISTON ROD is brass covered, 15/16 inches in diameter, except portion which does not come in contact with liquid, which is 11/16-inch cold rolled steel. Is threaded at lower end for both 7/16-inch rod and ⅜-inch pipe coupling. Can also be furnished for ⅝-inch Box Pin Coupling. **STUFFING BOX** is removable, giving a 3-inch opening for withdrawal of plunger and rod. **BRASS PACKING GLAND** has bolt adjustment.

GEARING is all machine cut from the solid blank. The Pinion and adjacent teeth of Gear are protected by a cast iron guard. **CONNECTING ROD** is cast iron, connected to Gear by 1-inch Steel Crank Pin, and to Crosshead by ¾-inch Steel Pin. **GEAR SHAFT** is 1½-inch cold rolled steel. **PULLEY SHAFT** is 1⅛-inch cold rolled steel. **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 14-inch diameter. **BRASS OIL CUPS** at bearings, and **GREASE CUP** on Loose Pulley.

AIR COMPRESSOR has adjustable stroke, and will maintain sufficient air in pressure tank.

REGULARLY FITTED for 3-inch Suction and 2-inch Discharge.

MAXIMUM SPEED should not exceed 40 up strokes per minute.

OVER-ALL DIMENSIONS—Height, 4 feet 2 inches; Width, 19 inches; Length, 30 inches; Net Weight, 280 pounds.

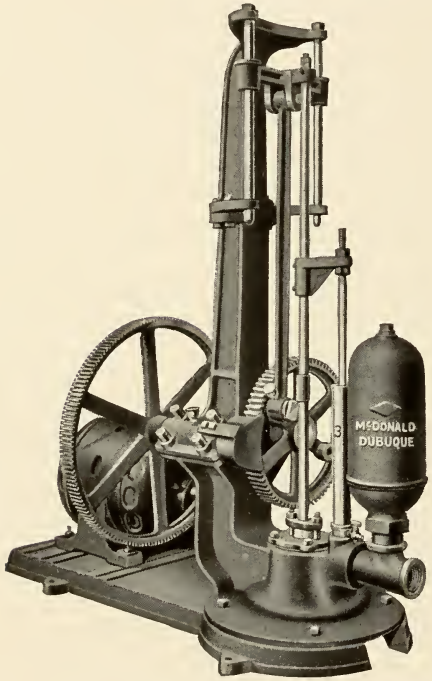
Price..... **95.00**

If without Air Compressor, deduct 12.00.

McDONALD POWER WORKING HEAD

ELECTRIC DRIVE **MACHINE CUT GEARS**
6, 8, 10-INCH STROKE **SPLIT BABBITTED BEARINGS**

FIG. 413 AC-E



This illustration shows our Fig. 413 AC-E Power Working Head, direct geared to electric motor, and suitable for deep well service requiring not more than two Horse Power to operate. Motor and Working Head are rigidly mounted upon a substantial cast iron bedplate, insuring permanent alignment of gearing.

STANDARD consists of two parts, the lower section containing the Bearings and pipe connections, while the upper section contains the Crosshead Guide. **SPLIT BABBITTED BEARINGS** are cast integral with the lower section, and have removable caps, thus allowing take-up for wear. **CROSSHEAD** has Babbitted Bearings working on ¾-inch Steel Guide Rods.

PISTON ROD is 13/16-inch in diameter, and brass covered except part which does not come in contact with liquid, which is 11/16-inch cold rolled steel. It is threaded at lower end for both 7/16-inch rod and ⅜-inch pipe coupling. Can also be furnished for ⅝-inch Box Pin Coupling, without extra charge. **STUFFING BOX** is removable, giving a 3-inch opening for withdrawing plunger and rod. **BRASS PACKING GLAND** has bolt adjustment and operates in ample packing space.

GEARING is all machine cut from the solid, while both pinions and adjacent teeth of gears are shielded by cast iron guards. **MAIN GEAR SHAFT** is 1½-inch cold rolled steel. **MOTOR GEAR SHAFT** is 1⅛-inch cold rolled steel. **CONNECTING ROD** is cast iron, connected to Gear by 1-inch Steel Crank Pin, and to Crosshead by ¾-inch Steel Pin. **BRASS OIL CUPS** at bearings.

AIR COMPRESSOR is strong and serviceable and has adjustable stroke. Will maintain sufficient air in pressure tank.

REGULARLY FITTED for 3-inch Suction and 2-inch Discharge.

SPEED is about 40 up-strokes per minute.

OVER-ALL DIMENSIONS—Height, 4 feet 5 inches; Width, 26 inches; Length, 45 inches; Net Weight without motor, 345 pounds.

Information and prices on this Working Head with Electric Motor, will be furnished on request. Can supply Motors from ¾ to 2 Horse Power, depending on depth and diameter of well, amount of water desired and pressure required. In writing, also state electrical conditions.

Price, without Electric Motor..... **120.00**

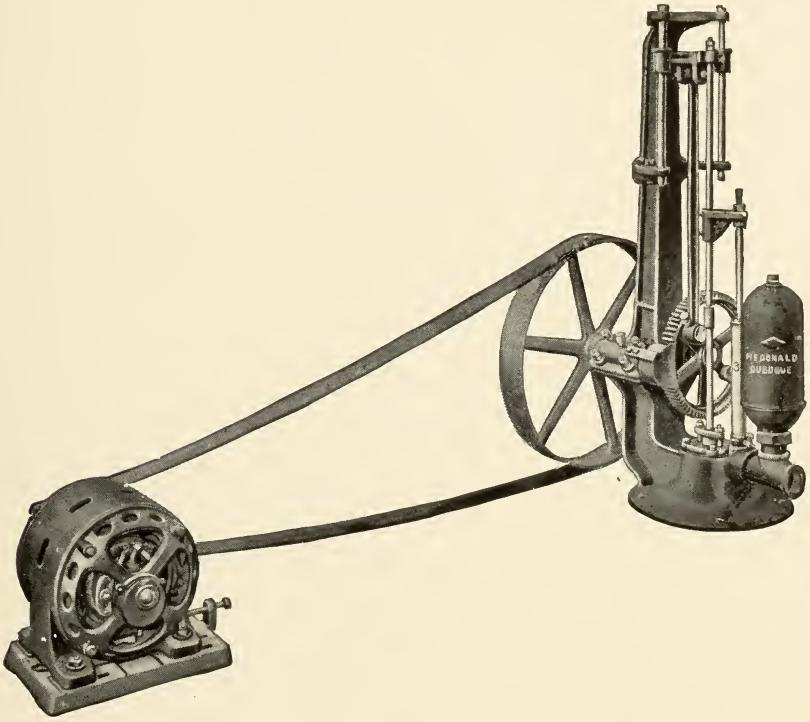
If without Air Compressor, deduct 12.00.

McDONALD POWER WORKING HEAD

SPLIT BABBITTED BEARINGS **BACK GEARED 5½ TO 1**

6, 8, 10 INCH STROKE **MACHINE CUT GEARS**

FIG. 413 BE



This illustrates a McDonald Power Working Head equipped with 24x3½-inch tight pulley, for belt connection to Electric Motor, or other high speed driving source. This Working Head is designed for deep well service. Suitable for Motors up to 2 Horsepower.

STANDARD consists of two sections, the lower part containing the Bearings, and pipe connections, while the upper part carries the Crosshead Guide. **SPLIT BABBITTED BEARINGS** with removable caps, are cast integral with the lower section.

PISTON ROD is brass covered where it comes in contact with liquid, and is threaded at lower end for both 7/16-inch rod, and 3/8-inch pipe coupling. Can also be furnished for 5/8-inch box pin coupling. **STUFFING BOX** is removable, leaving a 3-inch opening for withdrawal of plunger and rod. **BRASS PACKING GLAND** has bolt adjustment.

AIR COMPRESSOR has adjustable stroke, and will keep pressure tank amply supplied.

REGULARLY FITTED for 3-inch Suction and 2-inch Discharge.

MAXIMUM SPEED should not exceed 40 up-strokes per minute.

OVER-ALL DIMENSIONS.—Height, 4 feet 2 inches; Width, 25 inches; Length, 27 inches; Net Weight, 280 pounds.

Price, without Motor or Belt..... **95.00**

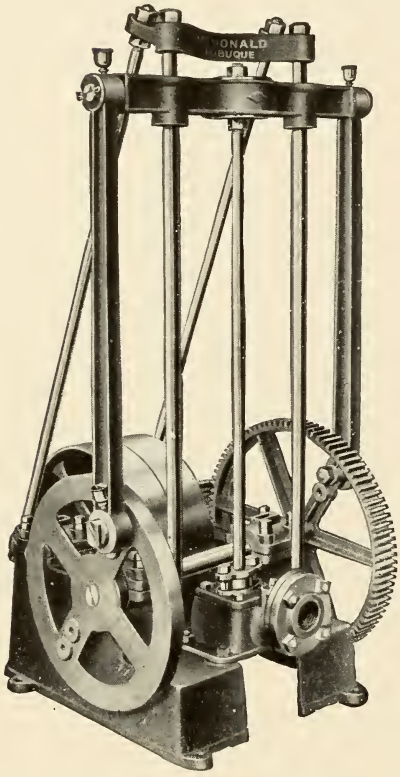
If without Air Compressor, deduct 12.00.

McDONALD POWER WORKING HEAD

SPLIT BABBITTED BEARINGS
MACHINE CUT GEARS

8, 10, 12, 14-INCH STROKE
BACK GEARED 6 TO 1

FIG. 415-14



The illustration shows our 14-inch stroke Figure 415 Working Head built for deep well service, and adapted for power drive by belt from electric motor, engine, or line shaft. It is designed to operate a 3¾-inch cylinder in a well 150 feet to water, or smaller cylinders in deeper wells.

BASE is one casting, of the well known box section type, which gives maximum strength and rigidity with minimum weight. **SPLIT BABBITTED BEARINGS** which are cast integral with Base, have removable Caps, thus allowing adjustment and take-up for wear. **CROSSHEAD** is of Cast Iron with Babbitted Guide Rod Bearings. It is so constructed, that, by removing the two center flanges a 3¾-inch plunger can be drawn directly up through without otherwise disturbing the pump.

PISTON ROD is ⅞-inch cold rolled steel, or may be brass covered to order, and is threaded at lower end for ⅞-inch x 10 thread box pin coupling. **GUIDE RODS** are 1⅛-inch cold rolled steel, securely fastened to Base, and are braced by ⅞-inch Stay Rods. **WELL HEAD,** which is a separate casting to which suction and discharge pipes are connected, is bolted to Base so that the entire Working Head may be withdrawn from over the well, without taking down the piping. **BRASS PACKING GLAND** has bolt adjustment, and operates in stuffing box of ample size and capacity.

GEARING is all machine cut from the solid, and is protected by a cast iron guard. **CONNECTING RODS** are of cast iron, and have removable bronze bushings at lower end. They are connected to gear and crank plate by 1¼-inch steel crank pins. **TIGHT AND LOOSE PULLEYS** are 3½-inch face by 16-inch diameter. **GEAR SHAFT** is 1½-inch cold rolled steel. **PULLEY SHAFT** is 1¼-inch cold rolled steel. **BRASS GREASE CUPS** at all Connecting Rod Bearings and **GREASE CUP** on Loose Pulley.

AIR COMPRESSOR (not illustrated), 1¾-inch diameter, can be attached when Working Head is used to Supply Pressure Tank Water Systems, and will maintain an ample supply of air in tank.

AIR CHAMBER (not illustrated) will be furnished when ordered, and is desirable when the discharge pipe is long, or leads to an elevated reservoir.

REGULARLY FITTED for 4-inch Suction and 2-inch Discharge.

MAXIMUM SPEED should not exceed 35 up strokes per minute.

OVER-ALL DIMENSIONS:—Height, 4 feet, 9 inches; Width, 27½ inches; Length, 30½ inches; Net Weight, 420 pounds; Shipping Weight, 435 pounds.

Price	**95.00**
Add for Air Compressor	**12.00**
Add for Air Chamber	**5.00**

McDONALD POWER WORKING HEAD

FIG. 415-14

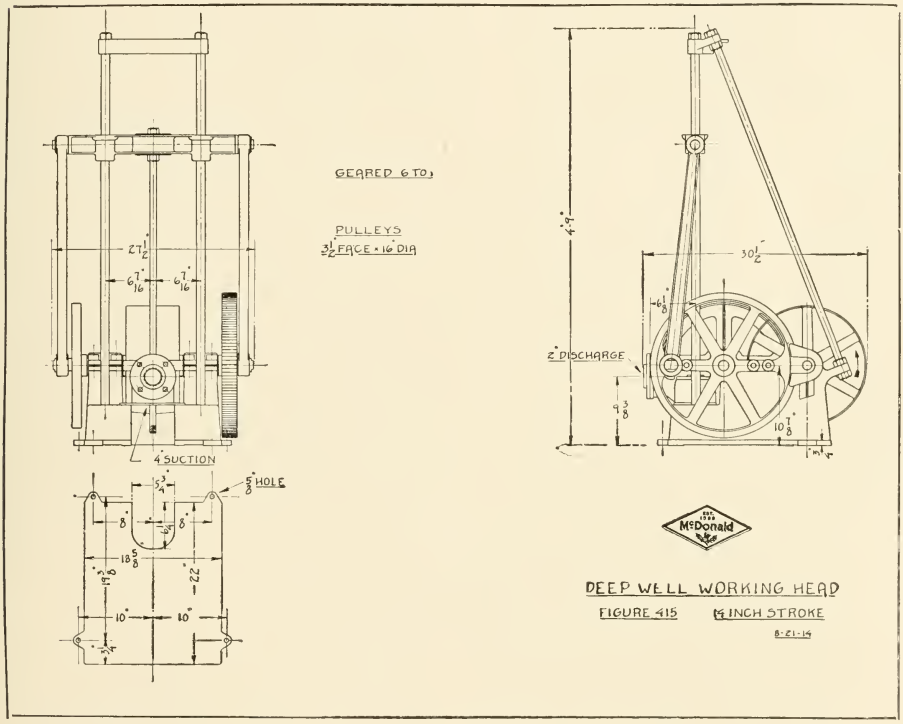


Table showing capacity and horse power required to operate McDonald Figure 415-14-inch stroke. Working Head, 35 up strokes per minute, under following maximum conditions of service.

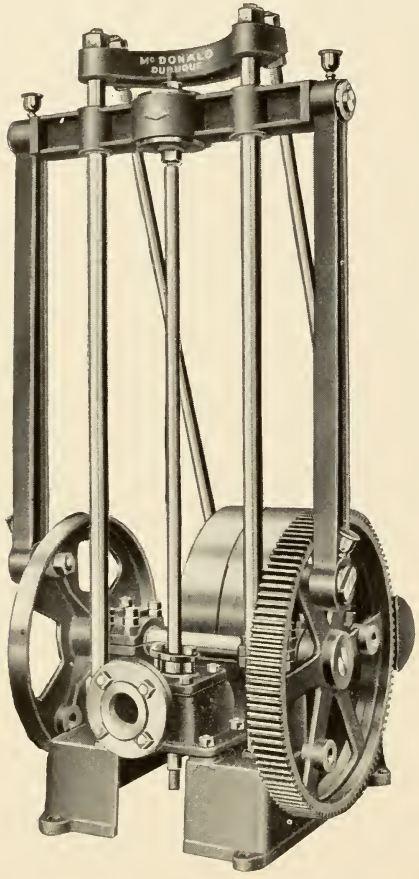
Cylinder Diameter.....inches	2	2¼	2½	2¾	3	3¼	3½	3¾
Depth to Water.....feet	450	400	325	275	235	200	175	150
Horse Power Required.....	3	3	3	3	3	3	3	3
Gallons per hour.....	400	500	625	754	895	1050	1225	1400

McDONALD POWER WORKING HEAD

SPLIT BABBITTED BEARINGS
MACHINE CUT GEARS

12, 14, 16-INCH STROKE
BACK GEARED 7 TO 1

FIG. 415-16



This cut illustrates our Figure 415—16-inch stroke Working Head, adapted for power drive by belt from engine, motor, or line shaft. It is designed for deep well service, and will operate a 4¾-inch cylinder in a well 175 feet to water, or smaller cylinders in deeper wells.

BASE consists of one box section casting, giving great strength and rigidity. **SPLIT BABBITTED BEARINGS** with removable caps are cast integral with Base, thus insuring proper alignment of gearing. **CROSSHEAD** has Babbitted Bearings for Guide Rods and is so arranged that a 4¾-inch plunger may be withdrawn directly through its center by the removal of two flanges without dismantling the pump.

PISTON ROD is 1⅛-inch cold rolled steel, or may be brass-covered to order, and is threaded at lower end for 1-inch x 10-thread box pin coupling. **GUIDE RODS** are 1½-inch cold rolled steel and are braced by 1-inch Stay Rods. **WELL HEAD,** to which drop pipe is fastened, is a separate casting, bolted to Base, thus allowing Working Head to be withdrawn from over well without disturbing pipe connections. **BRASS PACKING GLAND** with bolt adjustment, fits large stuffing box, giving ample packing space.

GEARING is all machine cut from the solid, and is protected by a cast iron guard. **TIGHT AND LOOSE PULLEYS** are 4-inch face by 20-inch diameter. **CONNECTING RODS** are cast iron with bronze bushings at lower end, and are connected to Gear and Crank Plate by 1½-inch Steel Crank Pins. **GEAR SHAFT** is 2-inch cold rolled steel. **PULLEY SHAFT** is 1½-inch cold rolled steel. **BRASS GREASE CUPS** at all Connecting Rod Bearings, and **GREASE CUP** on Loose Pulley.

AIR CHAMBER (not shown) will be furnished when ordered, and is desirable when the discharge pipe is long, or leads to an elevated reservoir.

REGULARLY FITTED for 5-inch Suction and 2½-inch Discharge.

MAXIMUM SPEED should not exceed 30 up strokes per minute.

OVER-ALL DIMENSIONS—Height, 5 feet 3 inches; Width, 31 inches; Length 35 inches; Net Weight, 745 pounds; Shipping Weight, 760 pounds.

Price	**140.00**
Add for Air Chamber	**10.00**

McDONALD POWER WORKING HEAD

FIG. 415-16

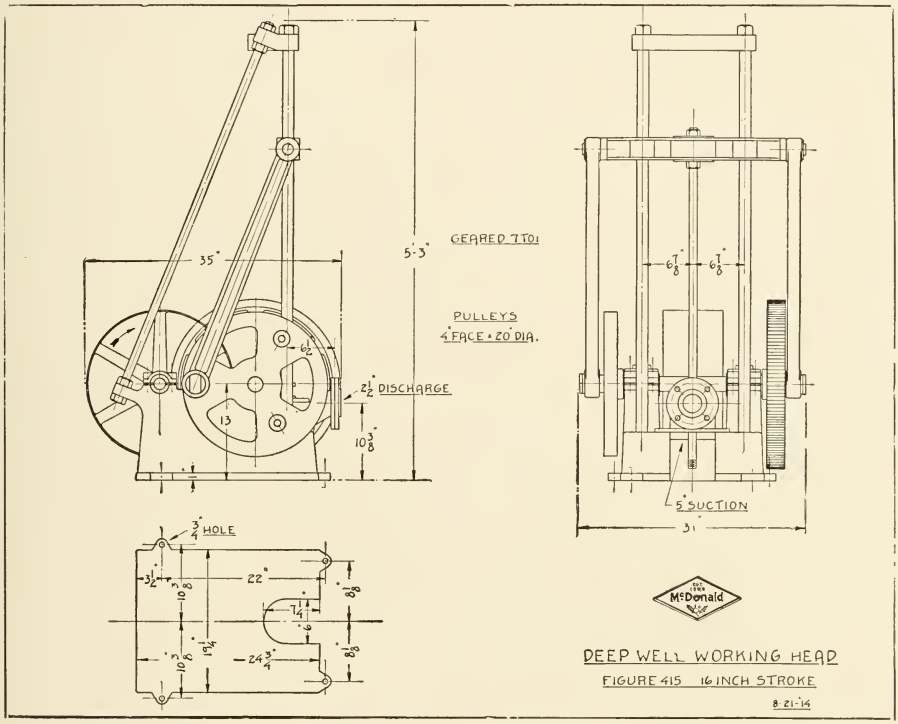


Table showing capacity and horse power required to operate McDonald Figure 415-16-inch stroke Working Head, 30 up strokes per minute, under following maximum conditions of service.

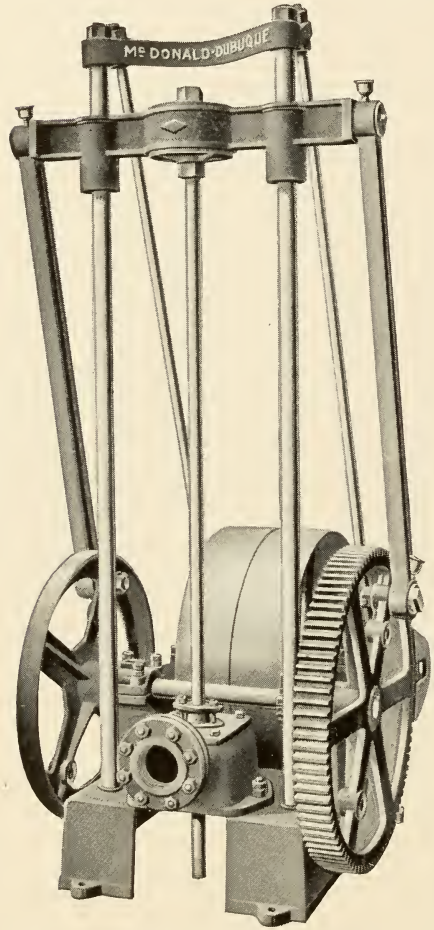
Cylinder Diameter..inches	2½	2¾	3	3¼	3½	3¾	4	4¼	4½	4¾
Depth to Water.....feet	550	500	425	350	315	275	225	200	190	175
Horse Power Required...	4	4	4	4	4	4	4	4	4	4
Gallons per hour.....	625	754	895	1050	1225	1400	1590	1800	2020	2250

McDONALD POWER WORKING HEAD

SPLIT BABBITTED BEARINGS
MACHINE CUT GEARS

16, 20, 24-INCH STROKE
BACK GEARED 6 TO 1

FIG. 415-24



Here is shown our 24-inch stroke Figure 415 Working Head, built for deep well service, and arranged to be driven by belt from line shaft, engine, motor, or other power source. It is of heavy and massive construction, and is suitable for operating a 7¾-inch cylinder, in a well 100 ft. to water, or smaller cylinders in deeper wells.

BASE consists of one casting of the box section type, giving maximum strength and rigidity. **SPLIT BABBITTED BEARINGS,** having removable Caps, thus allowing take-up for wear, are cast integral with the Base, which insures proper alignment of gearing. **CROSSHEAD** has Babbitted Guide Rod Bearings of ample length, and is so constructed that a 7¾-inch plunger may be drawn directly through it by the removal of two flanges.

PISTON ROD is 1½-inch cold rolled steel, and is threaded at lower end for 1½-inch x 8-thread box pin coupling. **GUIDE RODS** are 2-inch cold rolled steel, firmly fastened to Base at lower end, and are braced by 1¼-inch Stay Rods. **WELL HEAD** which contains suction and discharge openings, is a separate casting bolted to the Base. This arrangement allows the Working Head to be drawn back from over the well, without disturbing the piping. **BRASS PACKING GLAND** has bolt adjustment, and operates in stuffing box, having ample packing space.

GEARING is all machine cut from the solid, and is protected by a cast iron guard. **TIGHT AND LOOSE PULLEYS** are 6½-inch face by 30-inch diameter. **CONNECTING RODS** are of cast iron, with removable bronze bushings at lower end. **CRANK PINS** are of steel, 1¾ inches in diameter by 2¼ inches long.

GEAR SHAFT is 2¼-inch cold rolled steel. **PULLEY SHAFT** is 1¾-inch cold rolled steel. **BRASS GREASE CUPS** at all Connecting Rod Bearings, and on Loose Pulley.

AIR CHAMBER (not shown) will be furnished when ordered, and is desirable when the discharge pipe is long, or leads to an elevated reservoir.

REGULARLY FITTED for 8-inch Suction and 4-inch Discharge.

MAXIMUM SPEED should not exceed 25 up strokes per minute.

OVER-ALL DIMENSIONS—Height, 7 feet 6 inches; Width 42 inches; Length 51 inches; Net Weight, 1675 pounds; Shipping Weight, 1725 pounds.

Price **300.00**
Add for Air Chamber, with Flanged Tee **30.00**

McDONALD POWER WORKING HEAD

FIG. 415-24

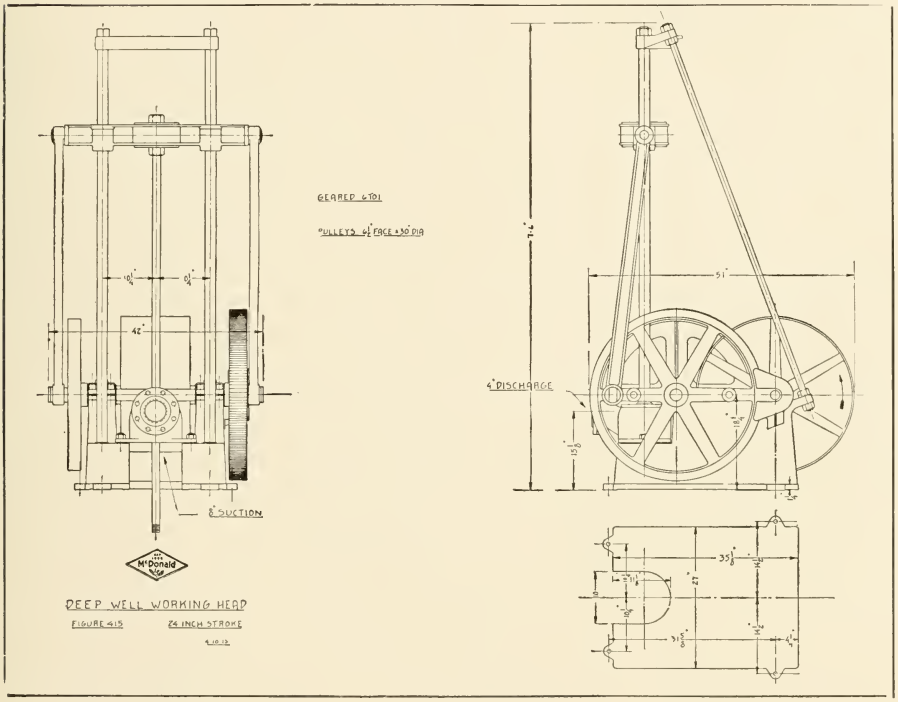


Table showing capacity and horse power required to operate McDonald Figure 415-24-inch stroke Working Head, 25 up strokes per minute, under following maximum conditions of service.

Cylinder Diameter...inches	3¼	3½	3¾	4	4¼	4½	4¾	5	5¾	6¾	7¾
Depth to Water.....feet	550	475	425	375	325	275	250	225	175	125	100
Horse Power Required	7½	7½	7½	7½	7½	7½	7½	7½	7½	7½	7½
Gallons per hour.....	1290	1500	1700	1950	2200	2450	2750	3040	4025	5575	7350

McDONALD POWER WORKING HEADS

ANTI-FREEZING
SPLIT BABBITTED BEARINGS

MACHINE-CUT GEARS
THREE SIZES, 14, 16 AND 24-INCH STROKE

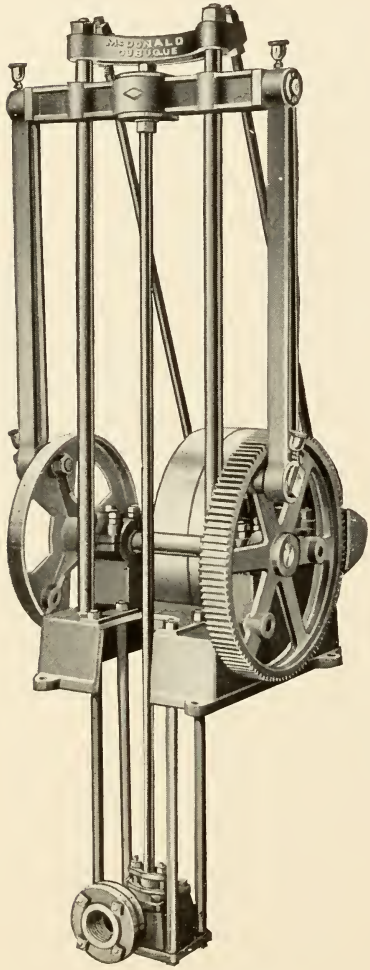


Fig. 415, TYPE A. F.

FIG. 415 TYPE A. F. Power Working Heads are made in three sizes, namely, Fig. 415-14 Type A. F., Fig. 415-16 Type A. F. and Fig. 415-24 Type A. F. They differ from Fig. 415-14, Fig. 415-16 and Fig. 415-24 Power Working Heads in only one respect, Fig. 415 Type A. F. having the **WELL HEAD** suspended below the platform to prevent freezing of the Well Head and Stuffing Box, in cold climates.

Regularly the Well Head of Fig. 415 Type A. F. Power Working Heads is four feet below the platform or foundation, but the Well Head can be suspended more or less than four feet down, as ordered.

WELL HEADS are suspended on Steel Rods which attach to the Working Head and Well Head. **PISTON RODS** are furnished long enough to extend from Cross Head through the Well Head.

We advise that the Well Pipe be supported or carried by the well casing or floor of the well pit as the well pipe is often too heavy a load for the steel rods supporting the Well Head.

For General Description of these three sizes of Fig. 415 Type A. F. Power Working Heads, see Fig. 415-14, Fig. 415-16 and Fig. 415-24 Power Working Heads, as they are alike except as to the location of the Well Head.

	Strokes Inches	Suction Pipe Inches	Discharge Pipe Inches	Price, with Well Head Suspended Four Feet Below Base	Add for Each Foot Well Head if Suspended Beyond Four Feet	Add for Air Chamber
Fig. 415-14 Type A. F.	8, 10, 12, 14	4	2	**103.00**	**1.20**	**5.00**
" 415-16 " A. F.	12, 14, 16	5	2½	**152.00**	**2.00**	**10.00**
" 415-24 " A. F.	16, 20, 24,	8	4	**316.00**	**2.50**	**30.00**

Add for Air Compressor on Fig. 415-14 Type A. F., 12.00.

McDONALD POWER WORKING HEAD

FOR OPERATING SINGLE AND DOUBLE ACTING DEEP WELL CYLINDERS

Fig. 418-12

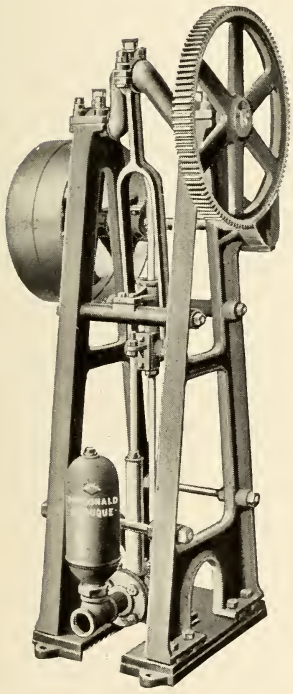


Fig. 418 is a substantial Working Head of the type adapted for use with Differential Plunger, and is designed for operating a 3¾-inch Cylinder in a well 150 feet to water, or smaller cylinders in deeper wells.

FRAME consists of two cast iron Standards bolted to the Base, securely braced and fastened together, forming a very rigid construction.

WELL HEAD is a separate casting and is so arranged in connection with the Base that the entire Working Head may be withdrawn from over the well, without disturbing the pipe connections.

MAIN AND PINION SHAFT BEARINGS are babbitted, and are cast integral with the Standards. They have removable Caps, thus allowing adjustment and take-up for wear. **MAIN BEARING** is 2 x 4¾ inches. **PINION BEARING** is 1¼ x 4¾ inches.

GEARING is all machine cut from the solid. Pinion and adjacent teeth of Gear, are protected by a cast iron guard.

STEEL CRANK SHAFT is of massive design, accurately machined to gauge.

CONNECTING ROD is fitted with adjustable babbitted box, 1¾ x 2 inches, at crank end, and steel Crosshead Pin.

AIR CHAMBER of ample capacity regularly furnished.

DIFFERENTIAL PLUNGER (when ordered) works through outside packed stuffing box with brass gland, and equalizes flow of water with single acting cylinders. Charged extra, as listed below.

AIR COMPRESSOR is 1¾ inches in diameter, and is essential when Working Head is used with Pressure Tank Water Supply Systems. Charged extra, as listed below.

Fig. 418-12

Stroke Inches	Speed R. P. M.	Maximum Pipe Sizes Inches Suction	Maximum Pipe Sizes Inches Discharge	Gear Ratio	Tight and Loose Pulleys Inches	Approx. Weight Pounds	Price	Add for Air Compressor	Add for Differential Plunger
12	35	4	2	7 to 1	20 x 4	650	150.00	12.00	8.00

McDONALD POWER WORKING HEAD

FIG. 418-12

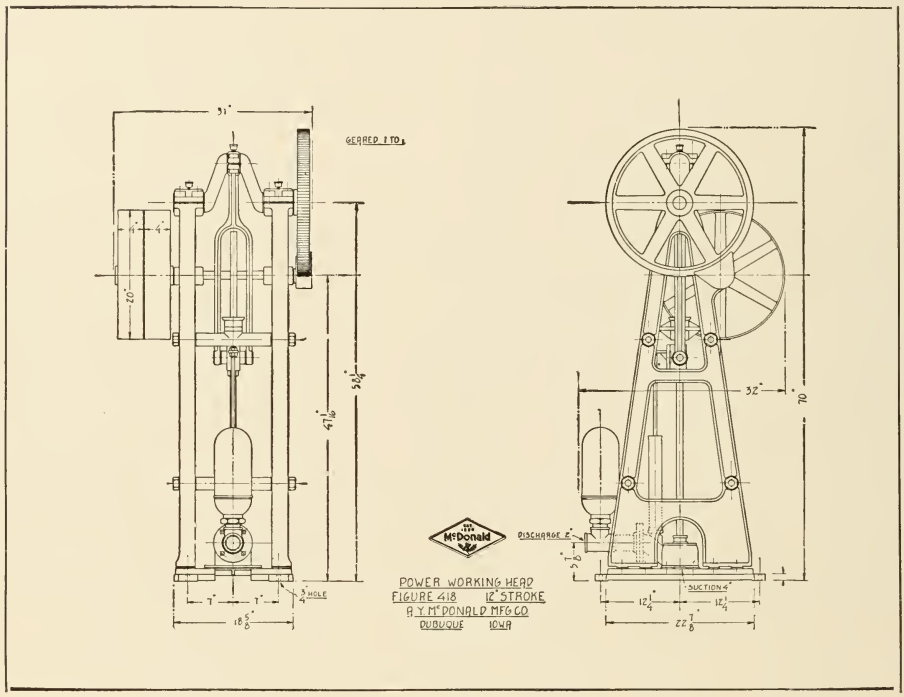


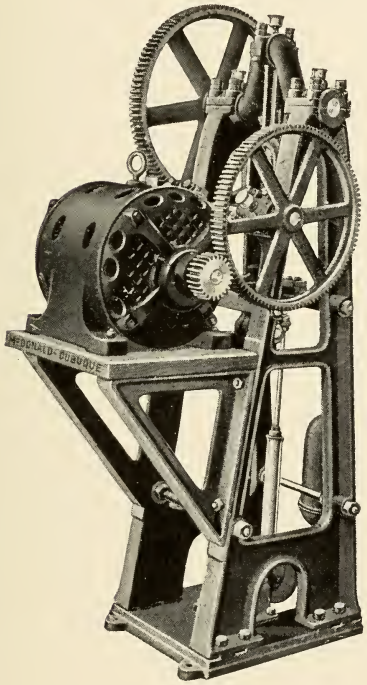
Table showing capacity and horse power required to operate McDonald Figure 418-12-inch stroke Working Head, 35 revolutions per minute, under following maximum conditions of service.

Single Acting Cylinder, Diameter .....inches	2¼	2½	2¾	3	3¼	3½	3¾
Depth to Water.....feet	275	250	200	175	150	130	110
Horse Power Required	2	2	2	2	2	2	2
Gallons per hour.....	430	535	645	765	900	1050	1190
Double Acting Cylinder, Diameter.....inches	2¼	...	2¾	...	3¼	...	3¾
Depth to Water.....feet	200	...	150	...	125	...	100
Horse Power Required	3	...	3	...	3	...	3
Gallons per hour.....	810	...	1060	...	1660	...	2270

McDONALD POWER WORKING HEAD

FOR OPERATING SINGLE AND DOUBLE ACTING DEEP WELL CYLINDERS

FIG. 418-12 TYPE E



This cut illustrates our Type E drive as adapted to Fig. 418—12 inches. Different sizes and types of motors can be used, though we recommend motors of 1200 R. P. M. or less. **STEEL CUT PINION** on motor shaft unless otherwise ordered but rawhide or fabroid pinion can be furnished at extra cost. Is intended for operating a 3¾-inch Cylinder in a well 150 feet to water, and can be used with Differential Plunger.

FRAME consists of two cast iron Standards bolted to the Base, securely braced and fastened together, forming a very rigid construction.

WELL HEAD is a separate casting and is so arranged in connection with the Base that the entire Working Head may be withdrawn from over the well, without disturbing the pipe connections.

MAIN AND PINION SHAFT BEARINGS are babbitted, and are cast integral with the Standards. They have removable Caps, thus allowing adjustment and take-up for wear. **MAIN BEARING** is 2 x 4¾ inches. **PINION BEARING** is 1¼ x 4¾ inches.

GEARING is all machine cut from the solid. Pinions and adjacent teeth of Gears are protected by guards.

STEEL CRANK SHAFT is of massive design, accurately machined to gauge.

CONNECTING ROD is fitted with adjustable babbitted box, 1¾ x 2 inches at crank end, and steel Crosshead Pin.

AIR CHAMBER of ample capacity regularly furnished.

DIFFERENTIAL PLUNGER (when ordered) works through outside packed stuffing box, with brass gland, and equalizes flow of water with single acting cylinders. Charged extra, as listed below.

AIR COMPRESSOR is 1¾ inches in diameter, and is essential when Working Head is used with Pressure Tank Water Supply Systems. Charged extra, as listed below.

FIG. 418 TYPE E

Stroke Inches	Speed R. P. M.	Maximum Pipe Sizes Inches Suction	Discharge	Main Gear Ratio	Approx. Wt. less Motor Pounds	Price less Motor	Add for Air Compressor	Add for Differential Plunger
12	35	4	2	7 to 1	675	200.00	12.00	8.00

Furnished complete, with any size or type of motor up to 3 Horse Power. Prices on application.

McDONALD POWER WORKING HEAD

FOR OPERATING SINGLE AND DOUBLE ACTING DEEP WELL CYLINDERS

SPLIT BABBITTED BEARINGS — 18-INCH STROKE

BACK GEARED 6 TO 1 — MACHINE CUT GEARS

FIG. 418-18

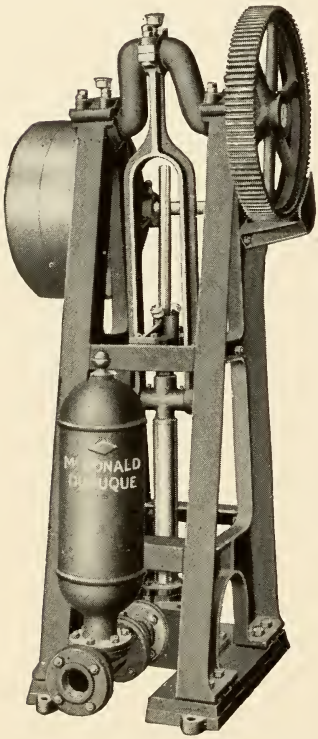


Fig. 418 Working Head is adapted for use with Single Acting Cylinders and Differential Plunger, or Double Acting Cylinders. It is simple and rugged in construction, with all parts easily accessible. Is designed for operating a 5¾-inch cylinder in a well 150 feet to water, or smaller cylinders in deeper wells.

FRAME consists of two cast iron Standards bolted to the Base, securely braced and fastened together by cross ties in such a manner as to secure very rigid construction.

WELL HEAD is a separate casting, and contains the Suction and Discharge openings. By disconnecting it from the Base, the entire Working Head may be withdrawn from over the well, without disturbing the pipe connections.

MAIN and **PINION SHAFT BEARINGS** are babbitted, and are cast integral with the Standards. The Bearing Caps are removable and adjustable, thus permitting compensation for wear. **MAIN BEARING** is 3 inches x 6 inches. **PINION BEARING** is 2 inches x 6 inches.

GEARING is of ample strength, and is all machine cut from the solid blank. Pinion and adjacent teeth of Gear, are protected by a cast iron guard. **STEEL CRANK SHAFT** is accurately machined to gauge and is of strong and massive design. **CONNECTING ROD** is fitted with adjustable babbitted bearing, of marine type, at crank end, and is bronze bushed at crosshead end. **CROSSHEAD PIN** is of steel, 1½ inches in diameter.

AIR CHAMBER with **FLANGED TEE** regularly furnished, as shown. **DIFFERENTIAL PLUNGER** (when ordered) operates thru outside packed stuffing box, with bolted gland, and equalizes the flow of water with single acting cylinders.

Stroke Inches	Speed R. P. M.	Maximum Pipe Sizes Suction Inches	Maximum Pipe Sizes Discharge Inches	Gear Ratio	Tight and Loose Pulleys Inches	Approximate Weight Pounds	Price	Add for Differential Plunger
18	30	6	3	6 to 1	26x5	1700	350.00	25.00

McDONALD POWER WORKING HEAD

FIG. 418-18

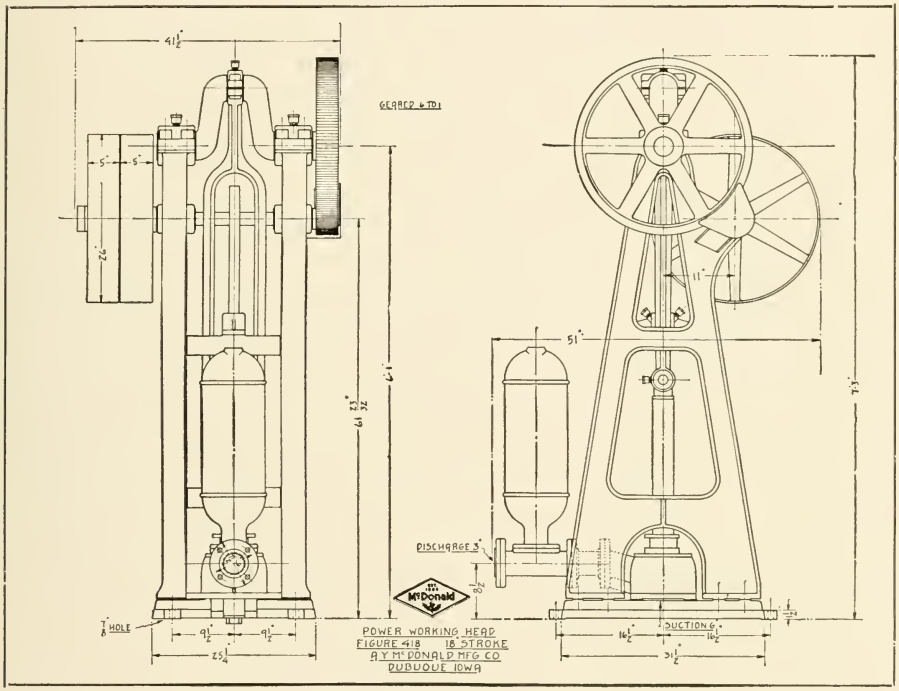


Table showing capacity and horse power required to operate McDonald Figure 418-18-inch stroke working head, 30 revolutions per minute, under following maximum conditions of service.

Single Acting Cylinder, Diameter.....inches	2¾	3¼	3¾	4¼	4¾	5¾
Depth to Water.....feet	500	425	325	250	200	150
Horse Power Required.....	5	6	6	6	6	6
Gallons per Hour.....	830	1160	1540	1980	2480	3635
Double Acting Cylinder, Diameter.....inches	2¾	3¼	3¾	4¼	4¾	5¾
Depth to Water.....feet	350	275	225	190	150	110
Horse Power Required.....	7½	8	9	9	9	9
Gallons per Hour.....	1475	2085	2900	3700	4710	6750

McDONALD POWER WORKING HEAD

FOR OPERATING SINGLE AND DOUBLE ACTING DEEP WELL CYLINDERS
SPLIT BABBITTED BEARINGS, 18-INCH STROKE
DIRECT CONNECTED MOTOR, MACHINE CUT GEARS

FIG. 418-18 TYPE E

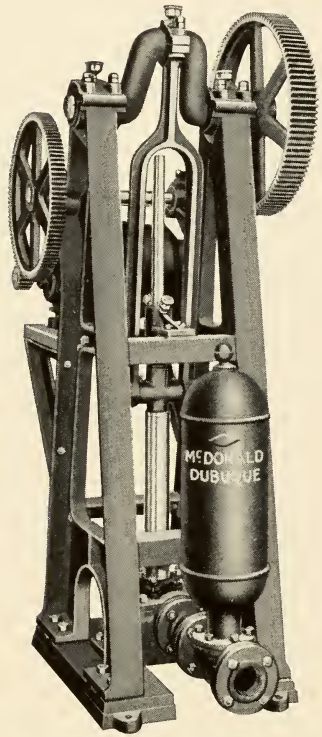


Fig. 418 Working Head, as shown is adapted for direct motor drive. Different sizes and types of motors may be used. Motor speeds should be 1200 R. P. M., or less. **STEEL CUT PINION** on motor shaft unless otherwise ordered but rawhide or fabroid pinion can be furnished at extra cost. Will operate a 5¾-inch cylinder in a well 150 feet to water, and is designed for use with Differential Plunger, or Double Acting Cylinder.

FRAME consists of two cast iron Standards bolted to the Base, securely braced and fastened together by cross ties in such a manner as to secure very rigid construction.

WELL HEAD is a separate casting, and contains the Suction and Discharge openings. By disconnecting it from the Base, the entire Working Head may be withdrawn from over the well, without disturbing the pipe connections.

MAIN AND PINION SHAFT BEARINGS are babbitted, and are cast integral with the Standards. The Bearing Caps are removable and adjustable, thus permitting compensation for wear. **MAIN BEARING** is 3 inches x 6 inches. **PINION BEARING** is 2 inches x 6 inches.

GEARING is of ample strength, and is all machine cut from the solid blank. Pinions and adjacent teeth of Gears are protected by guards. **STEEL CRANK SHAFT** is accurately machined to gauge, and is of strong and massive design. **CONNECTING ROD** is fitted with adjustable babbitted bearing, of marine type, at crank end, and is bronze bushed at crosshead end. **CROSSHEAD PIN** is of steel, 1½ inches in diameter.

AIR CHAMBER with **FLANGED TEE** regularly furnished, as shown. **DIFFERENTIAL PLUNGER** (when ordered) operates through outside packed stuffing box, with bolted gland, and equalizes flow of water with single acting cylinders.

Stroke Inches	Speed R. P. M.	Maximum Pipe Sizes Suction Inches	Discharge Inches	Main Gear Ratio	Approximate Wt. less Motor Pounds	Price less Motor	Add for Differential Plunger
18	30	6	3	6 to 1	1750	425.00	25.00

Furnished complete with any size of type of motor, to suit requirements. Prices on application.

McDONALD POWER WORKING HEAD

FOR OPERATING SINGLE AND DOUBLE ACTING DEEP WELL CYLINDERS

SPLIT BABBITTED BEARINGS
24-INCH STROKE

BACK GEARED 6¾ TO 1
MACHINE CUT GEARS

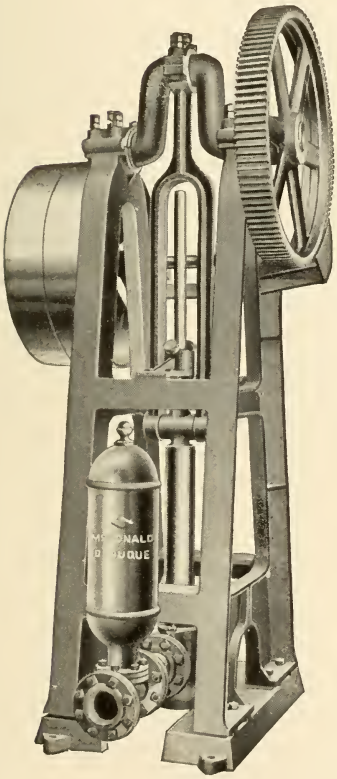


FIG. 418-24

Fig. 418 Working Head is adapted for use with Single Acting Cylinders and Differential Plunger, or Double Acting Cylinders. It is simple and rugged in construction, with all parts easily accessible. Is designed for operating a 7¾-inch cylinder in a well 90 feet to water, or smaller cylinders in deeper wells.

FRAME consists of two cast iron Standards bolted to the Base, securely braced and fastened together by cross ties in such a manner as to secure very rigid construction.

WELL HEAD is a separate casting, and contains the Suction and Discharge openings. By disconnecting it from the Base, the entire Working Head may be withdrawn from over the well, without disturbing the pipe connections.

MAIN AND PINION SHAFT BEARINGS are babbitted, and are cast integral with the Standards. The Bearing Caps are removable and adjustable, thus permitting compensation for wear. **MAIN BEARING** is 4 x 7 inches. **PINION BEARING** is 2¼ x 7 inches.

GEARING is of ample strength, and is all machine cut from the solid blank. Pinion and adjacent teeth of Gear, are protected by a cast iron guard. **STEEL CRANK SHAFT** is accurately machined to gauge and is of strong and massive design. **CONNECTING ROD** is fitted with adjustable babbitted bearing, of marine type, at crank end, and is bronze bushed at crosshead end. **CROSSHEAD PIN** is of steel, 2 inches in diameter.

AIR CHAMBER with **FLANGED TEE** regularly furnished, as shown. **DIFFERENTIAL PLUNGER** (when ordered) operates through outside packed stuffing box, with bolted gland, and equalizes the flow of water with single-acting cylinders.

Stroke Inches	Speed R. P. M.	Maximum Pipe Sizes Suction Inches	Maximum Pipe Sizes Discharge Inches	Gear Ratio	Tight and Loose Pulleys Inches	Approx. Weight Pounds	Price	Add for Differential Plunger
24	25	8	4	6¾ to 1	36x6½	2700	500.00	30.00

McDONALD POWER WORKING HEAD

FIG. 418-24

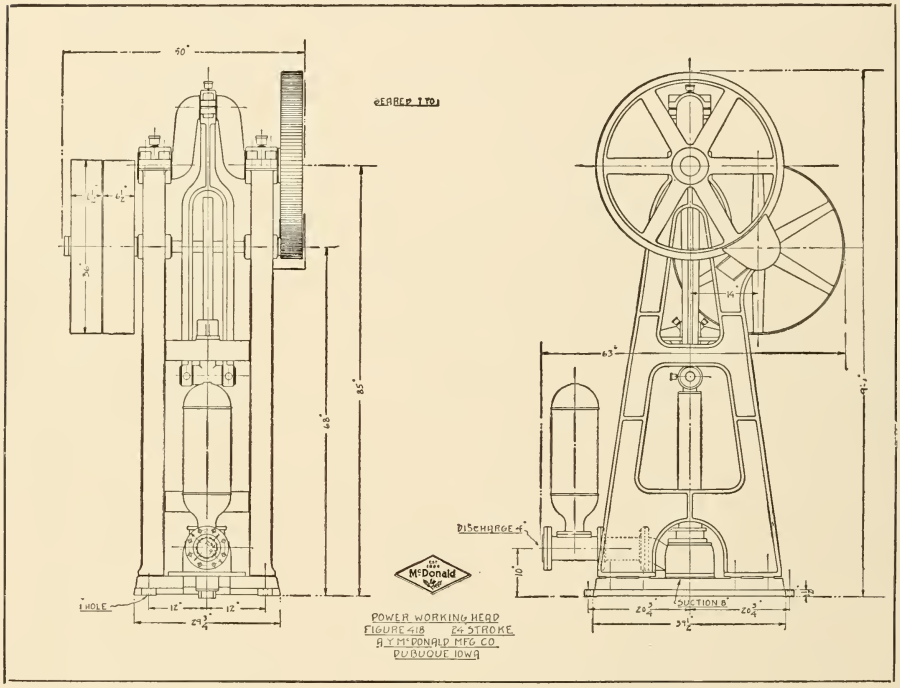


Table showing capacity and horse power required to operate McDonald Figure 418-24-inch stroke Working Head, 25 revolutions per minute, under following maximum conditions of service.

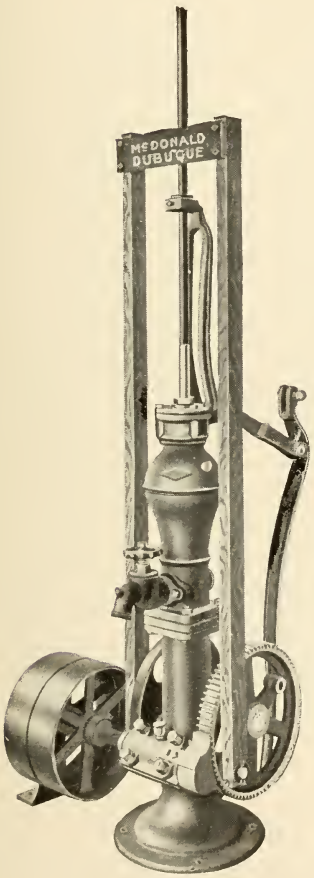
Single Acting Cylinder, Diameter..inches	3¼	3¾	4¼	4¾	5¾	6¾	7¾
Depth to Water.....feet	500	400	325	250	175	125	90
Horse Power Required.....	7	7½	7½	7½	7½	7½	7½
Gallons per Hour.....	1290	1680	2220	2760	4020	5580	7320
Double Acting Cylinder, Diameter..inches	3¼	3¾	4¼	4¾	5¾	6¾	7¾
Depth to Water.....feet	350	300	250	180	130	110	90
Horse Power Required.....	12	13	13	13	13	13	13
Gallons per Hour.....	2320	3220	4125	5250	7500	9750	13500

McDONALD POWER WORKING HEADS

SPLIT BABBITTED BEARINGS
6, 8, 10-INCH STROKE

BACK GEARED 6 TO 1
MACHINE CUT GEARS

FIG. 425



This illustration shows our Fig. 425 Working Head for use with either Hand or Belt Power, or Windmill adapted for deep well service equal to a 2¾-inch cylinder in a well 200 feet to water, or for deeper wells with smaller cylinders. By disconnecting crosshead from slide rod, handle or windmill can be used to operate the pump. The handle can be directly over the spout or at the back of the pump as shown.

STANDARD consists of three parts: Base Section, Pipe Flange and Spout Section. **SPLIT BABBITTED BEARINGS** with removable caps are cast integral with Base Section, insuring rigidity and proper alignment of gearing. **PIPE FLANGE** is tapped for 3, 2½ or 2-inch pipe as ordered. **SPOUT SECTION** forms the Air Chamber and the Compression Cock Spout is bolted to it. Union Connection for ¾-inch Hose is screwed on the spout. Spout Section is tapped in rear of spout for 2-inch pipe so that water can be conducted to any desired point. **CAP** is fastened to the spout section by three strong hook bolts. **REMOVABLE CHILLED BOX,** in top of cap, takes the wear of the slide rod and can easily be replaced. **PISTON ROD** is 1 1/16-inch Polished Steel, welded to 1x½-inch flat bar for windmill connection; lower end of Piston Rod is regularly threaded for 7/16-inch rod coupling and for ⅜-inch pipe to fit malleable wood rod coupling, but it can be threaded for ⅝ or ⅞-inch box pin coupling, when so ordered, without extra charge. Brass Stuffing Nut fits 1 1/16-inch piston rod, the opening through the nut being large enough to permit the 1x½-inch slide rod to pass through it.

GEARING is all Machine Cut from solid metal, and is protected by a cast iron guard. **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 12-inch diameter, but they can be furnished 14-inch diameter if so desired. If still larger diameter pulleys are needed, it will be necessary to raise the base of the Working Head up from platform so as to permit the pulleys to clear the platform. **CONNECTING RODS** are hard maple, 2 x 1⅛-inch, connected to gear and crank plate by 1-inch Steel Crank Pin. **GEAR SHAFT** is 1½-inch cold rolled steel. **PULLEY SHAFT** is 1⅛-inch cold rolled steel, supported at outer end by an **OUTBOARD BEARING** which removes all side strain from the Working Head.

REGULARLY FITTED for 3-inch well pipe and with 2-inch back outlet.

MAXIMUM SPEED should be about 40 strokes a minute.

OVER-ALL DIMENSIONS—Height, 71 inches; Width, 23 inches; Depth, 19 inches; Diameter of Base, 13 inches; Net Weight, 245 pounds.

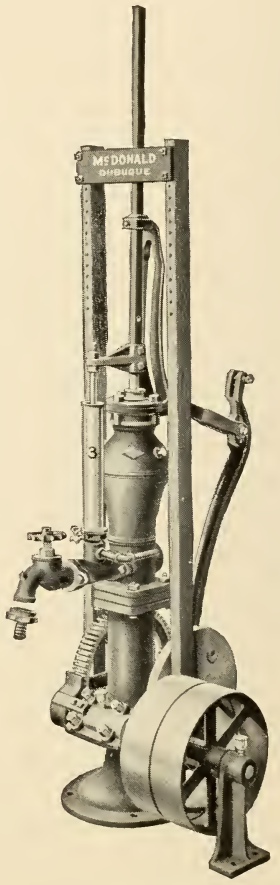
Price..... 40.00

McDONALD POWER WORKING HEAD

WITH AIR COMPRESSOR
6, 8, 10-INCH STROKE

BACK GEARED 6 TO 1
MACHINE CUT GEARS

FIG. 425AC



This illustration shows our Fig. 425-AC Working Head arranged with **AIR COMPRESSOR** for use with Pressure Tank Water Supply Systems. It will operate a 2¾-inch Cylinder in a well 125 feet to water, or smaller cylinders in deeper wells. By disconnecting crosshead from slide rod, handle or windmill can be used to operate pump.

STANDARD consists of three parts: Base Section, Pipe Flange, and Spout Section. **SPLIT BABBITTED BEARINGS** with removable caps, are cast integral with Base Section. **PIPE FLANGE** is tapped for 2-inch, 2½-inch or 3-inch pipe, as ordered. **SPOUT SECTION** forms the Air Chamber, and has the Compression Cock Spout and Air Compressor Extension bolted to it. **UNION CONNECTION** for ¾-inch Hose on Spout. Spout Section is tapped in rear for 2-inch pipe. **CAP** is fastened to Spout Section by three strong hook bolts. **REMOVABLE CHILLED BOX,** in top of Cap, takes wear of Slide Rod, and is easily replaced. **PISTON ROD** is 1 1/16-inch polished steel, welded to 1 x ½-inch flat rod for windmill connection. Piston Rod is threaded at lower end for 7/16-inch rod, and ⅜-inch pipe coupling, but can be threaded for ⅝ or ⅞-inch box pin coupling, without extra charge. **PACKING GLAND** is of brass with screw adjustment.

GEARING is all machine cut from the solid. Pinion and adjacent teeth of gear are protected by cast iron guard. **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 12 inches diameter. **CONNECTING RODS** are hard maple, 2 x 1⅛ inches connected to Gear and Crankplate by 1-inch steel Crank Pin. **GEAR SHAFT** is 1½-inch cold rolled steel. **PULLEY SHAFT** is 1⅛-inch cold rolled steel with **OUTBOARD BEARING** at outer end.

AIR COMPRESSOR, is 1¾ inches diameter and is attached to an Extension Piece, which carries the Cock Spout. The stroke of the Air Compressor is adjustable by means of the running thread on the Plunger Rod, so that practically complete displacement is possible in the cylinder. The Extension Piece is tapped on side for ¼-inch pipe, which should be connected to some point in discharge line between check valve and tank.

REGULARLY FITTED for 3-inch well pipe, and 2-inch back outlet.

MAXIMUM SPEED should be about 40 up-strokes per minute.

OVER-ALL DIMENSIONS.—Height, 71 inches; Width, 23 inches; Depth, 19 inches; Diameter of Base, 13 inches. Net Weight, 255 Pounds.

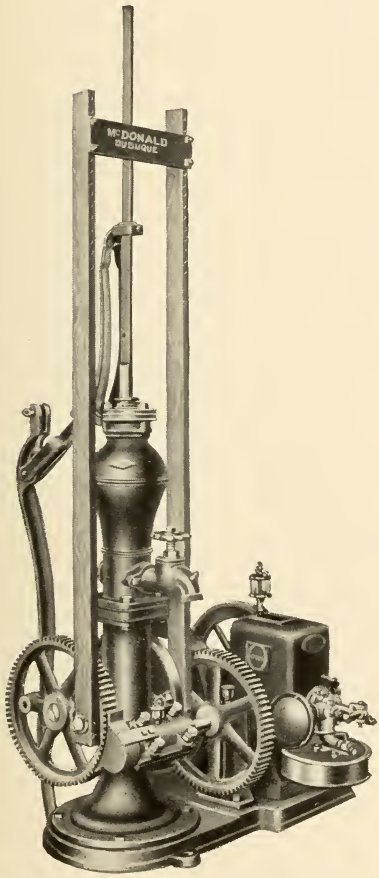
Price..... **52.00**

McDONALD POWER WORKING HEAD

GASOLINE ENGINE DRIVE
6, 8, 10-INCH STROKE

MACHINE CUT GEARS
SPLIT BABBITTED BEARINGS

FIG. 425 G-1



This illustration shows our Fig. 425 Working Head, direct geared to **ONE HORSE POWER GASOLINE ENGINE.** Engine and Working Head are mounted on a substantial cast iron bedplate which insures permanent alignment of all gearing and working parts. This outfit will operate a 2¾-inch cylinder in a well 125 feet to water.

STANDARD consists of three parts: Base Section, Pipe Flange, and Spout Section. **SPLIT BABBITTED BEARINGS** which are cast integral with Base Section, have removable caps. **PIPE FLANGE** is tapped for 3, 2½ or 2-inch pipe, as ordered. **SPOUT SECTION** forms the Air Chamber and is tapped in rear for 2-inch pipe. **CAP** is fastened to Spout Section by three strong hook bolts. **REMOVABLE CHILLED BOX,** in top of Cap, takes wear of slide rod. **PISTON ROD** is 1 1/16-inch polished steel, with 1 x ½-inch flat top for windmill connection. Is threaded at lower end for both 7/16-inch rod, and ⅜-inch pipe coupling. Can also be furnished for ⅝ or ⅞-inch Box Pin Coupling. **BRASS STUFFING NUT** fits into ample packing space.

GEARING is all machine cut from the solid. **CONNECTING RODS** are hard maple, 2 x 1⅛-inch, connected to Gear and Crank Plate by 1-inch Steel Crank Pin. **MAIN GEAR SHAFT** is 1½-inch cold rolled steel. **AUXILIARY GEAR SHAFT** is 1⅛-inch cold rolled steel, supported at end by **OUTBOARD BEARING.**

ENGINE is of the Four Stroke Cycle, Open Jacket, Hopper Cooled type, with Make and Break Ignition, and can be run continuously without overheating. Gasoline Tank holds about three quarts, sufficient for one day's run. It is a high-class engine, and has been thoroughly tested in connection with this Working Head. Engine and Working Head are sent complete with Batteries, Muffler, and Wrenches.

REGULARLY FITTED for 3-inch well pipe, and with 2-inch back outlet.

SPEED is about 40 up strokes per minute.

OVER-ALL DIMENSIONS— Height, 74 inches; Width, 35 inches; Length, 38 inches; Net weight, 400 pounds.

Price, Complete, with Engine	**135.00**
Add for 1¾-inch Air Compressor	**12.00**

McDONALD POWER WORKING HEAD

GASOLINE ENGINE DRIVE
6, 8, 10-INCH STROKE

MACHINE CUT GEARS
SPLIT BABBITTED BEARINGS

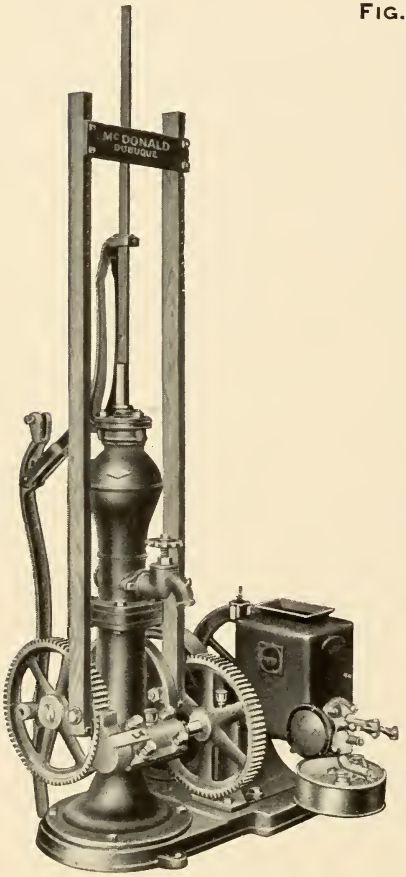


FIG. 425-G-1½

The above illustration shows our Fig. 425 Working Head, direct geared to **1½-HORSE POWER GASOLINE ENGINE.** Engine and Working Head are mounted on a rigid cast iron bedplate, thus insuring permanent alignment of gearing and working parts. Thus equipped, the Working Head will operate a 2¾-inch cylinder in a well 200 feet to water.

STANDARD consists of three parts: Base Section, Pipe Flange, and Spout Section. **SPLIT BABBITTED BEARINGS** which are cast integral with Base Section have removable caps. **PIPE FLANGE** is tapped for 3-inch, 2½-inch or 2-inch pipe, as ordered. **SPOUT SECTION** forms the Air Chamber, and is tapped in rear for 2-inch pipe. **CAP** is fastened to Spout Section by three strong hook bolts. **REMOVABLE CHILLED BOX,** in top of Cap, takes wear of slide rod. **PISTON ROD** is 1 1/16-inch polished steel with 1-inch x ½-inch flat top for windmill connection. Is threaded at lower end for both 7/16-inch rod and ⅜-inch pipe coupling. Can also be furnished for ⅝-inch or ⅞-inch Box Pin Coupling. **BRASS STUFFING NUT** fits into ample packing space.

GEARING is all machine cut from the solid. **CONNECTING RODS** are hard maple, 2-inch x 1⅛-inch connected to Gear and Crank Plate by 1-inch Steel Crank Pin. **MAIN GEAR SHAFT** is 1½-inch cold rolled steel. **AUXILIARY GEAR SHAFT** is 1⅛-inch cold rolled steel.

ENGINE is of the Four Stroke Cycle, Open Jacket, Hopper Cooled Type, with Make and Break Ignition, and can be run continuously without overheating. Gasoline Tank holds one gallon, sufficient for one day's run. It is a high grade engine and has been thoroughly tested in connection with this Working Head. Engine and Working Head are sent complete with Batteries, Muffler, and Wrenches.

REGULARLY FITTED for 3-inch well pipe and with 2-inch back outlet.

SPEED is about 40 up strokes per minute.

OVER-ALL DIMENSIONS—Height, 74 inches; Width, 36 inches; Length, 40 inches; Net Weight, 515 pounds.

Price, Complete, with Engine	**148.00**
Add for 1¾-inch Air Compressor	**12.00**

McDONALD POWER WORKING HEAD

ELECTRIC DRIVE
6, 8, 10-INCH STROKE
MACHINE CUT GEARS
SPLIT BABBITTED BEARINGS

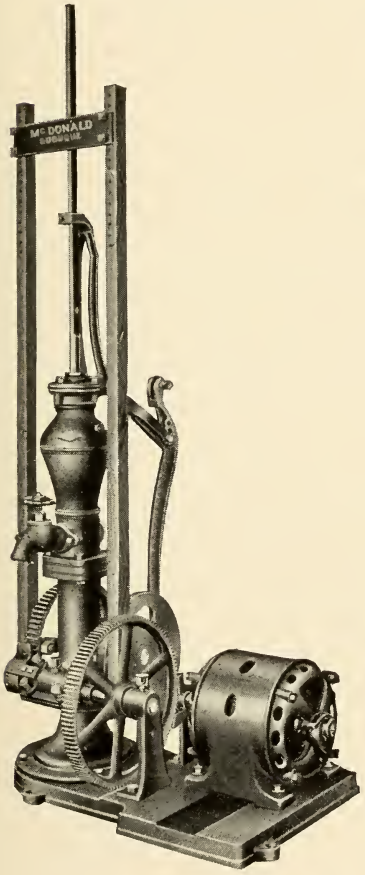


Fig. 425 E-D

This illustration shows our Fig. 425 E-D Power Working Head, direct geared to electric motor, and adapted for deep well service requiring not more than one Horse Power to operate. Motor and Working Head are mounted on a substantial iron bedplate, which insures permanent and positive alignment of gearing and working parts.

STANDARD consists of three parts: Base Section, Pipe Flange, and Spout Section. **SPLIT BABBITTED BEARINGS** are cast integral with the Base Section and have removable caps. **PIPE FLANGE** is tapped for 3, 2½ or 2-inch pipe, as ordered. **SPOUT SECTION** forms the Air Chamber and has Compression Cock Spout bolted to it, is also tapped at rear for 2-inch pipe. **CAP** is fastened to Spout Section by three strong hook bolts. **REMOVABLE CHILLED BOX**, in top of Cap, takes wear of slide rod, and can be easily replaced. **PISTON ROD** is 1 1/16-inch polished steel, with 1 x ½-inch flat top for windmill connection. Is threaded at lower end for both 7/16-inch rod and ⅜-inch pipe coupling. Can also be furnished for ⅝ or ⅞-inch Box Pin Coupling. **BRASS STUFFING NUT** fits into ample packing space.

GEARING is all machine cut from the solid. Both Pinions and adjacent teeth of Gears are protected by cast iron guards. Connecting Rods are hard maple, 2 x 1⅛-inch, connected to Gear and Crank Plate by 1-inch Steel Crank Pin. **MAIN GEAR SHAFT** is 1½-inch cold rolled steel. **MOTOR GEAR SHAFT** is 1⅛-inch cold rolled steel, supported at end by **OUTBOARD BEARING.**

REGULARLY FITTED for 3-inch well pipe and with 2-inch back outlet.

SPEED is about 40 up strokes per minute.

OVER-ALL DIMENSIONS—Height, 74 inches; Width, 31 inches; Length, 26 inches; Net Weight without motor, 295 pounds.

Information and prices on this Working Head with Electric Motor, will be furnished on request. Can supply either ¾ or 1-Horse Power motor, depending on depth and diameter of well, amount of water desired, and pressure required. In writing, also state electrical conditions.

Price, without Electric Motor	70.00
Add for 1¾-inch Air Compressor	12.00

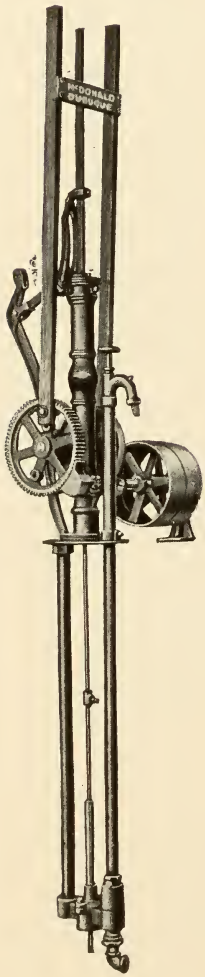
McDONALD POWER WORKING HEAD

UNDERGROUND VALVE FORCE PUMP

ANTI-FREEZING
6, 8, 10-INCH STROKE

BACK-GEARED 6 TO 1
MACHINE CUT GEARS

FIG. 466



Our Fig. 466 Heavy Underground Force Pump has been built with the Jack as an integral part of the Stock, thus eliminating the bother and trouble caused by a separate jack working loose. By disconnecting the crosshead from the slide-rod, handle or windmill can be used for operating. By operating wheel at spout, water may be discharged either at spout or through underground pipe at bridge piece. Will operate a 2¾-inch Cylinder in a well 200 feet to water, or smaller cylinders in deeper wells. If used with pressure tank, it will operate a 2¾-inch cylinder in a well 100 feet deep against a 45-pound tank pressure.

SPLIT BABBITTED BEARINGS are cast integral with Stock, and have removable Caps. **GEARING** is all machine cut from the solid. Pinion and adjacent teeth of gear are protected by cast iron guard. **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 12-inch diameter. **CONNECTING RODS** are hard maple, of ample strength, and are connected to Gear and Crankplate by 1-inch steel Crank Pin. **GEAR SHAFT** is 1½-inch cold-rolled steel. **PULLEY SHAFT** is 1⅛-inch cold rolled steel, and has **OUTBOARD BEARING** at end.

PISTON ROD, instead of having ordinary stuffing box and gland, has 1¼-inch brass packing tube, with two-leather plunger, a much more satisfactory arrangement.

REGULARLY FITTED for 1-inch Underground Discharge, 2-inch Suction, and Spout threaded for 1-inch hose coupling. Can also be furnished for 1¼-inch or 1½-inch Underground discharge, and 2½-inch or 3-inch Suction.

SET-LENGTH measures 4 feet 8 inches from base to elbow on Underground discharge. Longer set-lengths can be furnished at an additional cost.

MAXIMUM SPEED should not exceed 40 up-strokes per minute.

DIMENSIONS ABOVE BASE — Height, 6 feet; Length, 24 inches; Width, 21 inches. Net Weight, 250 pounds.

Price..... **35.00**

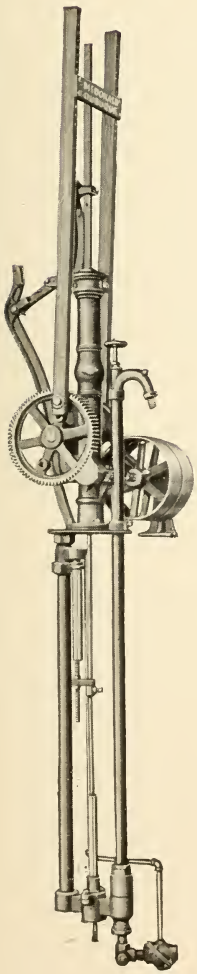
McDONALD POWER WORKING HEAD

AIR COMPRESSOR UNDERGROUND VALVE FORCE PUMP

ANTI-FREEZING
6, 8, 10-INCH STROKE

BACK GEARED 6 TO 1
MACHINE CUT GEARS

Fig. 466AC



Fitted with Air Compressor, our Fig. 466AC Heavy Underground Force Pump is especially adapted for use with Pressure Tank Water Supply Systems, and can be used in connection with gasoline engine or other belt power. It will operate a 2¾-inch Cylinder in a well 100 feet to water, or smaller cylinders in deeper wells, against a tank pressure of 45 pounds. By disconnecting crosshead from slide rod, handle or windmill can be used to operate pump. Water may be discharged either at spout, or through underground pipe at bridgepiece.

Pump Jack is cast solid with stock, which eliminates the trouble caused by a separate Jack working loose. **SPLIT BABBITTED BEARINGS** are cast integral with stock, and have removable Caps. **GEARING** is all machine cut from the solid, and pinion and adjacent teeth of gear are protected by cast iron guard. **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 12-inch diameter. **CONNECTING RODS** are hard maple, of ample strength, and are connected to Gear and Crank Plate by 1-inch steel Crank Pin. **GEAR SHAFT** is 1½-inch cold rolled steel. **PULLEY SHAFT** is 1⅛-inch cold rolled steel, and has **OUTBOARD BEARING** at end.

PISTON ROD, instead of having ordinary stuffing box and gland, has 1¼-inch brass packing tube, with two leather plunger, a much more satisfactory arrangement.

AIR COMPRESSOR is 1¼-inch diameter, and is operated by a Driving Arm attached to Piston Rod. Is regularly sent out adjusted for 10-inch stroke. Adjustment for change of stroke is provided for by means of a running thread on Plunger Rod.

REGULARLY FITTED for 1-inch Underground Discharge, 2-inch Suction, and Spout threaded for 1-inch hose coupling. Can also be furnished for 1¼-inch or 1½-inch Underground discharge, and 2½-inch or 3-inch Suction.

SET LENGTH measures 4 feet 8 inches from base to elbow on Underground discharge. Longer set lengths can be furnished at an additional cost.

MAXIMUM SPEED should not exceed 40 up strokes per minute.

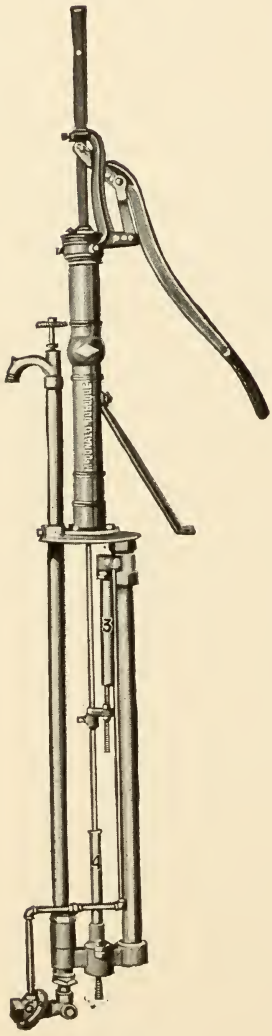
DIMENSIONS ABOVE BASE — Height, 6 feet; Length 24 inches; Width, 21 inches. Net Weight, 275 Pounds.

Price..... **50.00**

AIR COMPRESSOR UNDERGROUND VALVE WINDMILL FORCE PUMP

WITH BRASS PACKING TUBE

FIG. 66 A. C.



A strong, powerful pump of the underground type, particularly adapted for Open Wells, Drilled Wells or Tubular Wells, and for Pressure Tank Systems.

TAPPED for 2, 2½ or 3-inch pipe, as ordered. The plungers and valves of corresponding size can be withdrawn through the bridge piece by removing the packing tube.

BRASS PACKING TUBE (No. 4) on the bridge piece, in place of the usual stuffing box, prevents leakage and attention required by the old style piston rod and stuffing box.

FLANGE is bolted to the stock of the pump.

UNDERGROUND VALVE (strong and compact) is located just above the bridge piece, the brass operating screw being in the valve box below freezing line, and not at the top near the gooseneck; controlled by the valve wheel at the top of the gooseneck to discharge either through the spout or through the underground pipe below the bridge piece.

AIR COMPRESSOR CYLINDER (No. 3) is heavy seamless brass, the plunger rod being connected to the coupling between the slide rod and the plunger of the packing tube (No. 4). The Plunger Rod of Air Compressor has a running thread so that the stroke can be adjusted to make a complete displacement of air in the Cylinder. The Air Compressor operates when the pump is working and supplies air to the pressure tank. Discharge of air is through a ¼-inch galvanized pipe into the top of the Special Horizontal Check Valve (No. 6), thus eliminating all chance for leakage of air about the numerous joints at bridge piece.

THE PLUNGER OF AIR COMPRESSOR MUST BE ADJUSTED TO THE STROKE OF THE PUMP, WHEN OPERATED BY WINDMILL OR PUMP JACK, SO THAT IT GOES PRACTICALLY TO THE TOP OF THE CYLINDER ON THE UP-STROKE, THUS EXPELLING ALL THE AIR FROM THE CYLINDER, THE RUNNING THREAD ON THE PLUNGER ROD MAKES THIS ADJUSTMENT EASY.

VENT HOLE is provided in the discharge pipe to drain the discharge pipe and prevent freezing.

UNDERGROUND DISCHARGE is for 1-inch pipe, but may be for 1¼-inch if desired. **DISCHARGE PIPE** is 1¼-inch with gooseneck threaded for 1-inch hose coupling. **AIR CHAMBER PIPE** is 1½ inches.

SPECIAL CAST IRON HORIZONTAL CHECK VALVE (No. 6), is particularly adapted for use on Pressure Tank Systems, and is tapped for ¼-inch air inlet in the top cap.

The pump as shown, is fitted for Adjustable 6, 8 or 10-inch stroke, but it can be furnished for 6-inch stroke only if desired.

REGULARLY FITTED for 2-inch suction, 1-inch gooseneck discharge, 1-inch underground discharge and adjustable stroke. Set-length is 4 feet 8 inches from base to underground discharge.

Price.....each **27.00**

A small extra charge is made for furnishing the pump tapped for 2½ or 3-inch pipe, and for longer set-lengths.

AIR COMPRESSOR UNDERGROUND VALVE WINDMILL FORCE PUMP

WITH BRASS PACKING TUBE

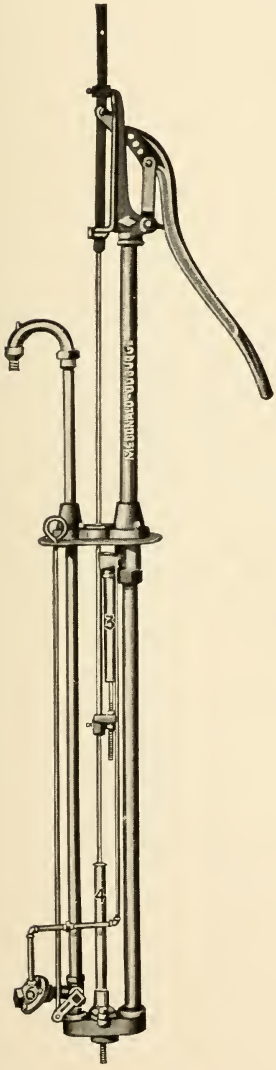


FIG. 70 A. C.

Adjustable split-grip base, very heavy, with two strong bolts and large gripping surface. Split cover, held by cap screws, and surrounding slide rod, is removable, so that plungers may be withdrawn.

PLUNGER ROD through brass packing tube, No. 4, is one piece, fitted with two-leather plunger of special construction, serviceable and easy to repair.

BRASS PACKING TUBE (No. 4,) is 1¼-inches, fitting snugly into cast iron sleeve and spun at the bottom to insure tight, rigid joint.

AIR COMPRESSOR CYLINDER (No. 3,) is heavy seamless brass, the plunger rod being connected to the coupling between the slide rod and the plunger of the packing tube, No. 4. The Plunger Rod of Air Compressor has a running thread so that the stroke can be adjusted to make complete displacement of air in the Cylinder. The Air Compressor operates when the pump is working and supplies air to the pressure tank. Discharge of air is through a ¼-inch galvanized pipe into the top of the Special Horizontal Check Valve No. 6.

THE PLUNGER OF AIR COMPRESSOR MUST BE ADJUSTED TO THE STROKE OF THE PUMP, WHEN OPERATED BY WINDMILL OR PUMP JACK, SO THAT IT GOES PRACTICALLY TO THE TOP OF THE CYLINDER ON THE UP-STROKE, THUS EXPELLING ALL THE AIR FROM THE CYLINDER. THE RUNNING THREAD ON THE PLUNGER ROD MAKES THIS ADJUSTMENT EASY.

VENT HOLE is provided in the discharge pipe to drain the discharge pipe and prevent freezing.

SPECIAL CAST IRON HORIZONTAL CHECK VALVE (No. 6), is particularly adapted for use on Pressure Tank Systems, and is tapped for ¼-inch air inlet in the top cap.

The pump, as shown, is fitted for Adjustable 6, 8, 10 and 12-inch Stroke, either hand or power.

UNDERGROUND DISCHARGE is for 1-inch pipe, **DISCHARGE PIPE** is 1-inch, fitted with gooseneck having union connection for ¾-inch hose. **AIR CHAMBER PIPE** is 1½ inches.

TAPPED for 2, 2½, or 3-inch pipe, as ordered. The plungers and valves of corresponding size can be withdrawn through the bridge piece by removing the packing tube, making it a desirable pump for Tubular Wells.

REGULARLY FITTED for 2-inch suction, 1-inch discharge, 6, 8, 10 and 12-inch Hand and Power Stroke. Set-Length is 4 feet from base to bottom of bridge piece.

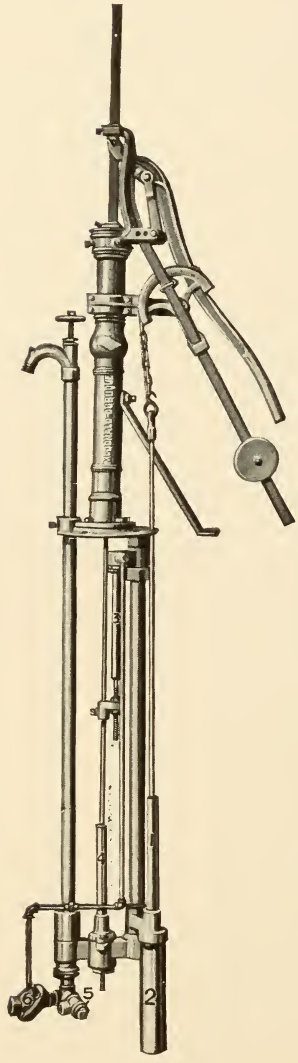
Price..... .....each **25.00**

A small extra charge is made for furnishing the pump tapped for 2½ or 3-inch pipe, and for longer set-lengths.

AIR COMPRESSOR—WINDMILL REGULATOR UNDERGROUND VALVE FORCE PUMP

WITH BRASS PACKING TUBE

FIG. 161 AC



Being a Windmill Regulator Pump, it automatically controls the windmill; the regulating cylinder being No. 2 on the illustration, the secondary cylinder No. 1, being in lieu of the usual stuffing box. The pressure operating on regulator cylinder, No. 2, will throw the mill out of the wind, by means of the connecting rod, chain and wire, **ON A STRAIGHT PULL.**

REGULATING CYLINDER is solid brass and stationary; the movement being in the plunger.

BRASS PACKING TUBE (No. 4), on the bridge piece, in place of the usual stuffing box, prevents leakage and attention required by the old style piston rod and stuffing box.

RELIEF VALVE (No. 5), is usually set at 70 pounds.

AIR COMPRESSOR CYLINDER (No. 3), is heavy seamless brass, the plunger rod being connected to the coupling between the slide rod and the plunger of the packing tube (No. 4). The Plunger Rod of Air Compressor has a running thread so that the stroke can be adjusted to make complete displacement of air in the Cylinder. The Air Compressor operates when the pump is working and supplies air to the pressure tank. Discharge of air is through a ¼-inch galvanized pipe into the top of the Special Horizontal Check Valve (No. 6).

THE PLUNGER OF AIR COMPRESSOR MUST BE ADJUSTED TO THE STROKE OF THE PUMP, WHEN OPERATED BY WINDMILL OR PUMP JACK, SO THAT IT GOES PRACTICALLY TO THE TOP OF THE CYLINDER ON THE UP-STROKE, THUS EXPELLING ALL THE AIR FROM THE CYLINDER. THE RUNNING THREAD ON THE PLUNGER ROD MAKES THIS ADJUSTMENT EASY.

SPECIAL CAST IRON HORIZONTAL CHECK VALVE (No. 6) is particularly adapted for use on Pressure Tank Systems, and is tapped for ¼-inch air inlet in the top cap.

The pump, as shown, has Adjustable 6, 8 and 10-inch stroke.

UNDERGROUND DISCHARGE is for 1-inch pipe, but may be for 1¼-inch if desired. **DISCHARGE PIPE** is 1¼-inch with gooseneck threaded for 1-inch hose coupling. **AIR CHAMBER PIPE** is 1½-inches.

TAPPED for 2, 2½ or 3-inch pipe, as ordered. The plungers and valves of corresponding size can be withdrawn through the bridge piece, by removing the packing tube, making it a serviceable pump for Tubular Wells.

REGULARLY FITTED for 2-inch suction, 1-inch gooseneck discharge, 1-inch underground discharge. Set-length is 4 feet 8 inches from base to underground discharge.

Price.....each **35.00**

A small extra charge is made for furnishing the pump tapped for 2½ or 3-inch pipe, and for longer set-lengths.

EXTRA HEAVY BOLTED FORCE PUMP STANDARD

FOR HAND, WINDMILL OR PUMP JACK

WITH DIRECT-ACTING POSITIVE AIR COMPRESSOR

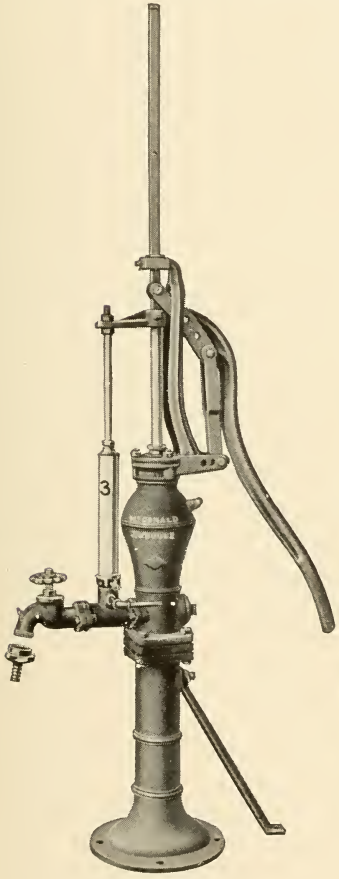


FIG. 216 AC

This illustration shows our Fig. 216 AC Standard, which is bolted together just below the spout, and is suitable for wells of any depth. As it is equipped with an independent **AIR COMPRESSOR** it is suitable for use with Pressure Tank Water Supply Systems.

STANDARD consists of three parts: the Base Section, Spout Section, and Pipe Flange. **BASE SECTION** has a wide, strong flange, suitable for extremely heavy duty, and is large enough inside to permit 3-inch pipe to pass through to the Pipe Flange. **SPOUT SECTION** forms the Air Chamber, to which the Air Compressor Extension is bolted, which in turn receives the Spout. It is tapped at rear of Spout opening for 2-inch pipe, so that water may be conducted to any desired point. This back outlet can also be furnished for 2½-inch pipe, at a small advance in price. **PIPE FLANGE** is tapped for 2, 2½, or 3-inch pipe, as ordered, and is firmly fastened between Base and Spout Section by four large bolts.

COMPRESSION

SPOUTS are bolted to the Extension Piece, and are interchangeable. They have a Union Connection for ¾ or 1-inch hose, as desired.

LEVER HANDLE

CAP is fastened to Spout Section by three strong hook bolts. **STUFFING BOX** is part of Cap, with an inner tube extending downward to prevent escape of air around the piston rod. **STUFFING NUT** is brass. **REMOVABLE CHILLED BOX** in top of Cap, takes wear of slide rod, and is easily replaced. **HANDLE** is long and extra strong.

PISTON ROD is 1 1/16-inch polished steel, welded to the 1x½-inch flat slide rod for windmill or pump jack connection. **PISTON RODS** are threaded for 7/16-inch rod and ⅜-inch pipe coupling, but can be threaded for ⅝ or ⅞-inch box pin coupling, without extra charge. **STROKE** is Adjustable, 6, 8, and 10-inch.

AIR COMPRESSOR is 1¾-inch diameter, and is attached to an Extension Piece which carries the Spout. The stroke of the Air Compressor is adjustable by means of the running thread on the Plunger Rod. The Extension Piece is tapped in the side for ¼-inch pipe, which should be lead to some point in discharge line between check valve and tank.

REGULARLY FITTED: 3-inch Well Pipe, 2-inch Back Outlet, Adjustable, 6, 8, and 10-inch Stroke, and Compression Cock Spout. If wanted otherwise, specify definitely in ordering. Approximate weight 120 pounds.

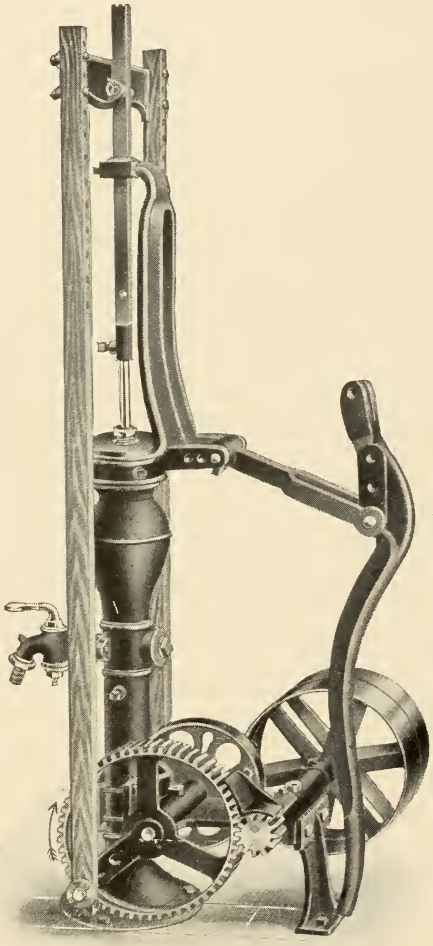
Price.....each **27.00**

VERTICAL PUMP JACK

BACK-GEARED 4⅘ TO 1 **BABBITTED BEARINGS**

ADJUSTABLE STROKE, 6, 8 OR 10 INCHES **MACHINE CUT GEARS**

FIG. 405



This illustration represents our Fig. 405 Pump Jack for operating ordinary well pumps by belt power from gasoline engines, electric motors, etc. It is adapted for use on any of our windmill standards or underground force pumps. It does not interfere with operation of the pump by hand, as removal of the pin from cross-head, lets the upright connecting rods drop out of the way.

BACK-GEARED 4⅘ to 1. **MAXIMUM SPEED** for pulleys should be about 180 revolutions per minute, which would give 37½ strokes of pump per minute.

TIGHT AND LOOSE PULLEYS are cast iron, 12 inches diameter by 2½-inch face. **CAST IRON GEAR** is 13 inches diameter by 1 5/16 face, and has a cast iron guard to prevent anything being caught in the gear.

PULLEY SHAFT and **GEAR SHAFT** are 1⅛ inches diameter, cold rolled steel, operating in solid boxes, which have **BABBITTED BEARINGS** 2½ inches long at each end of the box, with an oil well in the center.

CRANK PINS are 1-inch diameter by 3¼ inches long and are fastened to gear and face-plate by locknuts.

FRAME is cast iron, strong in every part and is fastened to the pump by a re-enforced cast iron clamp with four ⅜x4-inch bolts. At the other end it is supported by a strong leg, which is screwed to the platform.

CONNECTING RODS are hard maple, 1⅝ inches wide by 1⅛ inches thick and have a bolt through crank pin end to prevent splitting. **CROSS HEAD,** at the top of connecting rods, is fastened to them by four bolts. A series of holes bored in the connecting rods permits the cross-head to be placed at any desired height.

This Pump Jack is suitable for wells 175 feet deep with a 3-inch cylinder on 6-inch stroke or 140 feet deep on 8-inch stroke or 100 feet deep on 10-inch stroke.

Length, 20½ inches. Width, 19 inches. Height, not including connecting rods, 14½ inches. Height, including connecting rods, 68 inches. Distance between connecting rods, 9 inches. Weight, complete, 80 pounds.

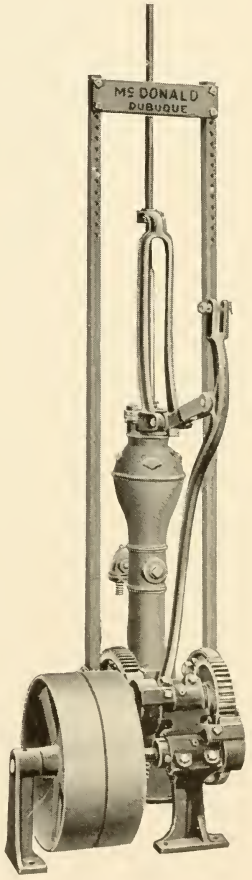
Price, without Pump **13.00**

VERTICAL PUMP JACK

ADJUSTABLE STROKE, 6, 8 OR 10-INCH DOUBLE BACK-GEARED 12 TO 1

MACHINE CUT GEARS SPLIT BABBITTED BEARINGS

FIG. 406



This Pump Jack is a double back-geared power attachment for operating any ordinary windmill, pump standard, or underground force pump. It is so arranged that it can be attached to any pump by simply clamping to standard near base, disconnecting handle, and fastening crosshead to windmill rod. Hand or windmill operation is not interfered with, as removal of pin in crosshead permits connecting rods to drop out of way.

Large Gear Reduction permits use of high speed power source, as Pulleys may be operated up to 480 revolutions per minute.

CAST IRON FRAME which carries working parts, is very strong and substantial. **BEARINGS** are of the **SPLIT BABBITTED** type, with removable Caps, and are of ample size for long service.

GEARING is all machine cut from the solid, and Pinions are protected by cast iron guards. **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 14 inches diameter, with pulley shaft supported at outer end by an **OUTBOARD BEARING**, which removes side strain from Jack. **CONNECTING RODS** are hard maple, 2 x 1⅛ inches and are practically vertical on the up stroke, thereby eliminating wear on pump cap.

MAIN GEAR SHAFT is cold rolled Steel, 1½ inches in diameter, while **AUXILIARY GEAR AND PULLEY SHAFTS** are 1⅛-inch cold rolled steel.

FIG. 406 JACK is built for heavy duty and will operate in a well 400 or 500 feet deep.

OVER-ALL DIMENSIONS.—Height, to top of pulley, 15½ inches; to crosshead, 72 inches; Length, 24 inches; Width, 23 inches; Net Weight, 170 pounds.

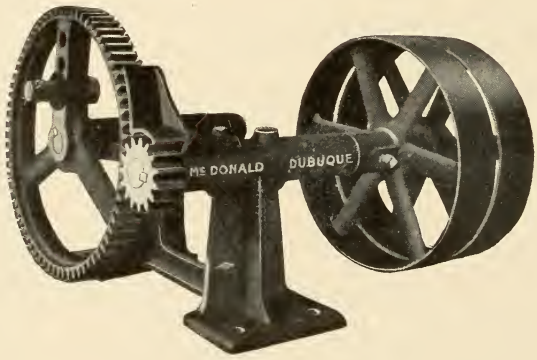
Price, without Pump 30.00

PUMP JACK

BACK GEARED 4⅕ TO 1
ADJUSTABLE STROKE, 5, 8 OR 10-INCH

BABBITTED BOXES
MACHINE CUT GEARS

FIG. 404



The above is an illustration of our new Pump Jack which is arranged to be fastened to a post, hung from beam to ceiling, or bolted to the floor. It is suitable for wells of medium depth in operating pump or working head. It is well and strongly built, and of the best materials throughout.

CAST IRON FRAME, on which the pulleys and gear are mounted, is very strong, being reinforced at all points of strain, mounted on two strong legs or brackets which give 1¼-inch clearance for the operation of pulleys and gear.

TIGHT AND LOOSE PULLEYS are cast iron 2½-inch face by 12-inch diameter. **BACK GEARED** 4⅕ to 1. **CRANK PIN** is cold rolled steel, 1-inch diameter by 3¼ inches long, lock-nutted to the gear by ¾-inch nut. **GEAR** is cast iron 1 5/16-inch face by 13-inch diameter, the mesh of gear and pinion being shielded by a cast iron guard to prevent accidents.

PULLEY AND GEAR SHAFTS are 1⅛-inch diameter, cold rolled steel, operating in solid boxes, **BABBITTED** 2½ inches at each end, with an oil well in the center.

Length 21 inches; Width 22 inches; Height 15 inches. Extreme spread of legs 17 x 7 inches.

Net weight 68 pounds. Weight, crated for shipment, 73 pounds.

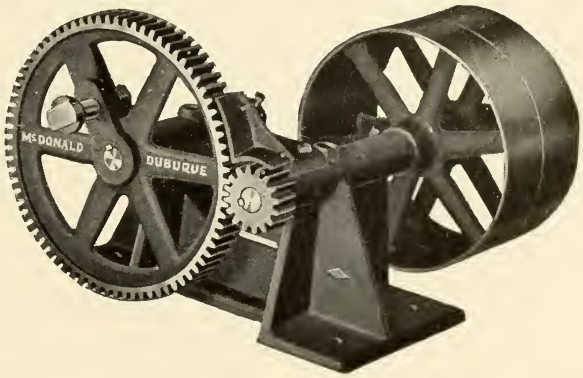
Price, Complete as shown.....each **13.00**

PUMP JACK

MACHINE CUT GEARS
BACK-GEARED 4⅘ TO 1

BABBITTED BEARINGS
ADJUSTABLE STROKE, 6, 8 OR 10-INCH

FIG. 407



Above illustration shows a substantial Pump Jack, suitable for use with Gasoline Engines, Electric Motors, or Driving Pulley. It can be bolted to the floor, fastened to a post, or hung from a beam or ceiling. It is strong enough to operate on wells 300 feet deep with a 3-inch cylinder, or on deeper wells with a smaller cylinder.

CAST IRON FRAME, on which the pulleys and gear are mounted, is very heavy and strong, being designed to withstand severe strain. Babbitted Bearing in which gear shaft operates is 7¾ inches long. Babbitted 3 inches at each end with an oil well in the center. Babbitted Bearing in which pulley shaft works is 10 inches long, babbitted 4 inches at each end with an oil well in the center.

TIGHT AND LOOSE PULLEYS are cast iron, 3¼-inch face by 14-inch diameter. **BACK-GEARED** 4⅘ to 1. **CRANK PIN** is 1-inch cold rolled steel with bearing for pitman 1½ inches long, and is fastened to the gear by a hexagon nut. **MACHINE CUT GEAR** is 13 inches diameter by 1½-inch face, shielded by a cast iron guard.

PULLEY SHAFT is 1⅛-inch diameter cold rolled steel. **GEAR SHAFT** is 1⅛-inch diameter cold rolled steel. Both shafts operate in solid boxes, babbitted at each end with an oil well in the center.

Length, 21 inches; Width, 20½ inches; Height, 14½ inches.

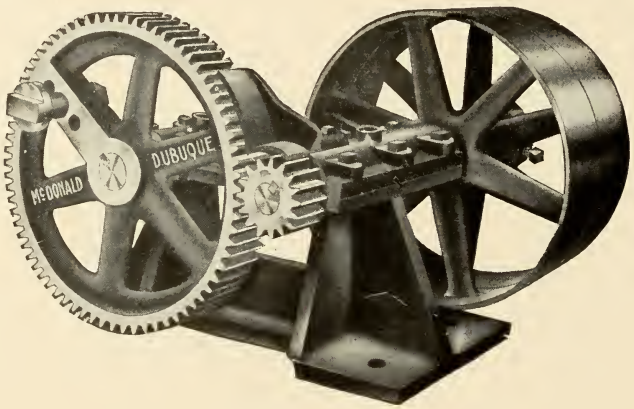
Extreme spread of frame, 17 x 10 inches. Weight, 122 pounds.

Price, Complete as Shown..... **20.00**

PUMP JACK

MACHINE CUT GEARS
BACK GEARED 4⅘ TO 1
SPLIT BABBITTED BEARINGS
ADJUSTABLE STROKE, 6, 8 OR 10-INCH

FIG. 408



This illustration shows our Fig. 408 Pump Jack, a very high-grade, strong, substantial Jack, suitable for use with Electric Motors, Gasoline Engines, or Belt from Line Shaft. It can be fastened to a post, bolted to the floor, or hung from a beam or ceiling. It is suitable for heavy duty, and is strong enough to operate a 3-inch cylinder in a well 300 feet deep, or smaller cylinders in deeper wells.

CAST IRON FRAME, on which pulleys and gear are mounted, is extra heavy and strong, built to withstand severe service. **SPLIT BABBITTED BEARING** in which gear shaft operates is 7¾ inches long, babbitted 3 inches at each end, with an oil well in the center. **SPLIT BABBITTED BEARING** in which pulley shaft operates is 10 inches long, babbitted 3 inches at each end, with an oil well in the center.

GEARING is all machine cut from the solid, and is protected by a cast iron guard. **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 14-inch diameter. **CRANK PIN** is 1-inch cold rolled steel with bearing for pitman 1½ inches long.

PULLEY SHAFT AND GEAR SHAFT are cold rolled steel, 1½ inches in diameter. Both shafts operate in babbitted bearings, which have removable caps, thus allowing take-up for wear, and greatly increasing the life of the bearing.

OVER-ALL DIMENSIONS — Length, 21 inches; width, 20½ inches; height, 14½ inches; maximum spread of feet, 17 x 9½ inches; net weight, 155 pounds.

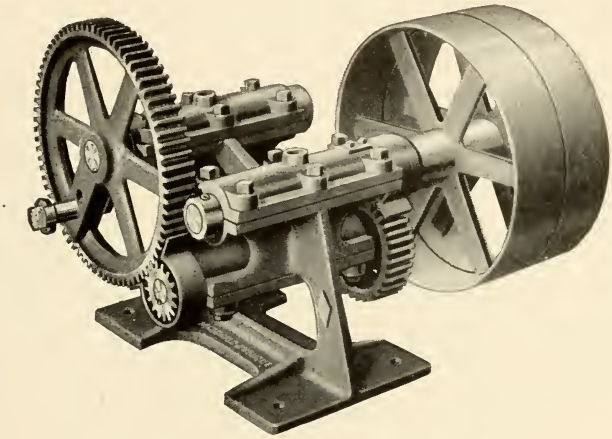
Price..... **27.00**

PUMP JACK

MACHINE CUT GEARS
BACK GEARED 12 TO 1

SPLIT BABBITTED BEARINGS
ADJ. STROKE, 6, 8 OR 10-INCH

FIG. 402



Above illustration shows our Fig. 402 Pump Jack, which is **DOUBLE BACK GEARED,** 12 to 1, and is especially adapted for use with 1750 R. P. M. Electric Motors. Most Pump Jacks are not back geared more than 6 or 8 to 1, and would operate too rapidly with high speed Motors. This is a high-grade, strong and substantial Jack, and can be bolted to the floor, fastened to a post, or hung from a beam or ceiling. All parts are sufficiently strong to permit its use up to 3 horse power load.

CAST IRON FRAME, on which pulleys and gears are mounted, is extra heavy and strong, built to withstand severe service. **SPLIT BABBITTED BEARINGS,** in which gear shafts and pulley shaft operate, are 10 inches long, babbitted 3 inches at each end, with oil wells in the center.

GEARING is all machine cut from the solid, and is protected by cast iron guards. **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 14-inch diameter. **CRANK PIN** is 1-inch cold rolled steel with bearing for pitman 1½ inches long. **PULLEY SHAFT AND GEAR SHAFTS** are cold rolled steel, 1½ inches in diameter. All shafts operate in babbitted bearings which have removable caps, thus allowing take-up for wear and greatly increasing the durability of the bearings.

SPEED— Using a 1750 R. P. M. Motor with 4-inch Driving Pulley, this Jack will operate 40 strokes per minute; but if slower speed Motor is used, the Driving Pulley should be larger than 4-inch diameter, so as to operate the Jack at about the same speed as with the 1750 R. P. M. Motor.

OVER-ALL DIMENSIONS — Length, 22 inches; width, 25 inches; height, 18 inches; maximum spread of feet, 17 x 9¾ inches; net weight, 195 pounds.

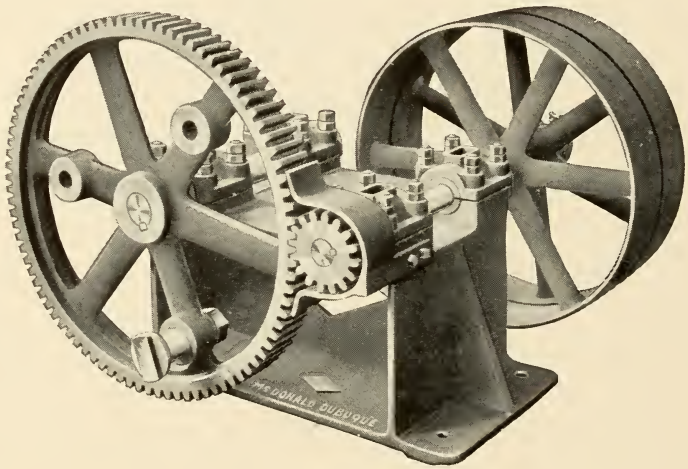
Price..... **40.00**

PUMP JACK

ADJUSTABLE STROKE, 12, 14 OR 16-INCH
BACK GEARED 5 6/10 TO 1

SPLIT BABBITTED BEARINGS
MACHINE CUT GEARS

FIG. 409



The above illustrates a very strong, substantial, high-grade Pump Jack, adapted for belt drive from Electric Motor, Gasoline Engine, Line Shaft, or other prime mover. It is of extremely massive construction, built to withstand hard and continuous use, and is designed for services requiring up to 6 Horse Power. It will operate a 5¾-inch cylinder in a well 125 feet to water, or smaller cylinders in deeper wells.

CAST IRON FRAME upon which the working parts are mounted, is strong and substantial, designed for heavy and continuous duty. **BEARINGS,** in which the Gear and Pinion Shafts operate, are of the **SPLIT BABBITTED** Type, with removable Caps, and are adjustable for wear. Caps are made with a cast oil well, which may be filled with grease, or oily waste, for lubrication purposes.

GEARING is all machine cut from the solid blank, and is protected by cast iron guard. **TIGHT AND LOOSE PULLEYS** are 4-inch face by 20 inches in diameter. **CRANK PIN** is of Machine Steel, with a bearing for Pitman 1¾ inches in diameter, by 2 inches long.

GEAR SHAFT is cold rolled steel, 2 inches in diameter. **PINION SHAFT** is cold rolled steel, 1½ inches in diameter.

OVER-ALL DIMENSIONS — Length, 36 inches; width, 28 inches; height, 24 inches; maximum spread of feet, 25¼ x 12¾ inches. Weight 425 pounds.

Price..... **67.00**

V & K WATER MOTOR PUMPS

STYLE DA

WITH HAND-OPERATED AIR COMPRESSOR

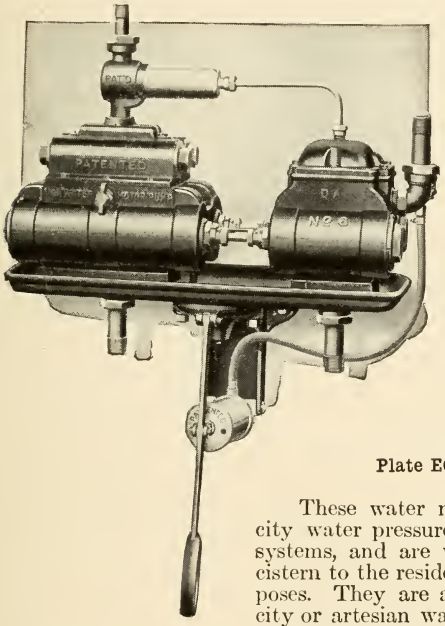
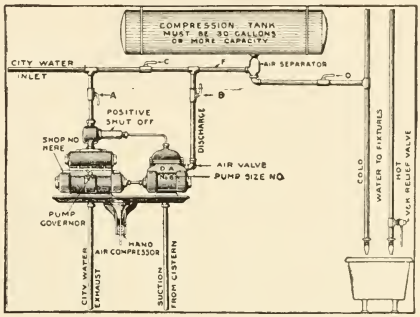


Plate E6931

METHOD OF INSTALLATION



These water motor pumps or water lifts are operated by city water pressure or pressure from pneumatic water supply systems, and are used for pumping soft or rain water from cistern to the residence for bath room, kitchen and laundry purposes. They are adaptable only in those localities where the city or artesian water is hard or otherwise unfit for use in the residence and where soft or rain water is used.

They are entirely automatic in operation and have only four moving parts.

Style DA motors are fitted with the V & K Positive Shut-off, V & K Air Separator, V & K Hand-operated Air Compressor and a full set of brass union fittings.

The V & K Air Separator and V & K Hand-operated Air Compressor are exclusive features of the V & K Pumps. They eliminate more than 75 per cent of the wear and tear on the pumps, besides eliminating altogether the water-logging of the compression tanks.

This air compressor may be attached to any V & K Pump already installed.

Be sure to get the lowest city water pressure at the point where pump is to be located, then choose the proper size pump for that pressure.

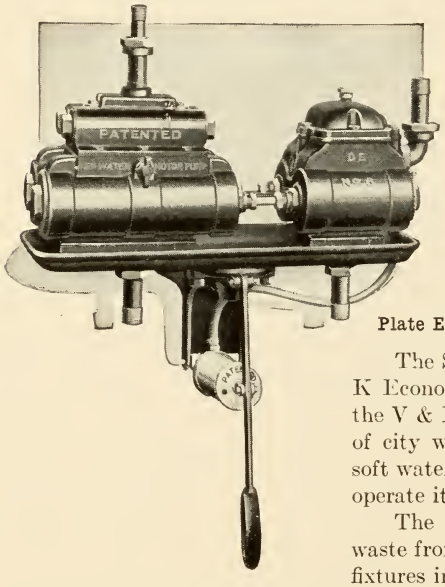
Diagram shows the correct method of installation using the Style DA Pump. Nothing less than a 30-gallon compression tank should be used, even on the smallest system. If the pump is to be used for supplying more than one bath room, add 30-gallon tank capacity for each additional bath, and for shower bath even greater tank capacity is necessary.

Size No.	Water Pressure Required Pounds	Size of Pipes to Use, Inches				Price Each
		Supply	Exhaust	Suction	Discharge	
4	40 to 65	½	¾	1	¾	56.00
5	15 " 30	¾	¾	¾	½	56.00
6	25 " 50	¾	¾	1	¾	56.00
7	65 and above	½	¾	1	¾	56.00

V & K WATER MOTOR PUMPS

STYLE DE

WITH HAND-OPERATED AIR COMPRESSOR



SYSTEM WITH STYLE DE PUMP

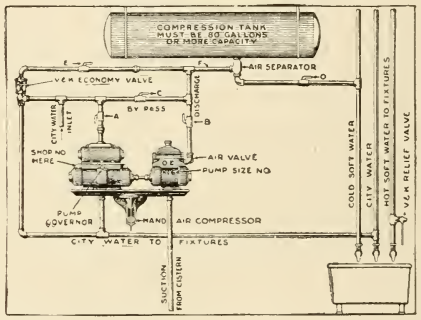


Plate E6941

The Style DE Pump is for use only with the V & K Economy System. This system is equipped with the V & K Economy Valve which prevents all waste of city water and makes possible the direct pressure soft water system without cost for city water used to operate it.

The valve operates as follows: The hard water waste from the motor pump is piped to the hard water fixtures in the residence and is used for flushing closets, etc. As hard water is used, the motor pump operates, pumping soft water into the compression tank until a certain predetermined pressure is developed, then the hard water is automatically by-passed around the motor pump. It will be seen, therefore, that the motor pump operates only that part of the time necessary to supply the soft water demand, and that the system operates without any expense whatever.

Style DE is also equipped with V & K Air Separator, V & K Hand-operated Air Compressor and a full set of brass union fittings.

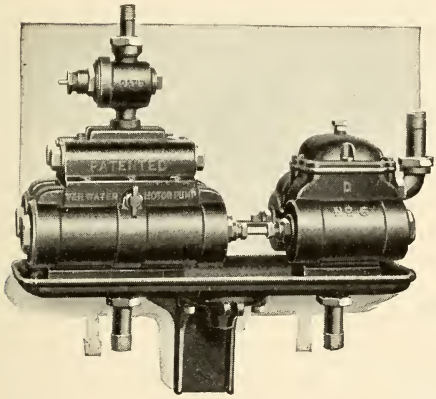
Diagram shows correct method for installing V & K Economy System using Style DE Pump.

A large sized compression tank is absolutely necessary to the successful operation of the V & K Economy System. Nothing less than an 80-gallon compression tank should be used, even on the smallest system, and for best results figure on 25 gallons in tank capacity for each member of the household. Example: For a family of four use a 100-gallon tank.

Size No.	Water Pressure Required Pounds	Size of Pipes to Use, Inches				Price Each
		Supply	Exhaust	Suction	Discharge	
4	60 and above	½	¾	1	¾	**64.00**
5	25 to 35	¾	¾	¾	½	**64.00**
6	35 " 60	¾	¾	1	¾	**64.00**

V & K WATER MOTOR PUMPS

STYLE D



SYSTEM WITH STYLE D PUMP

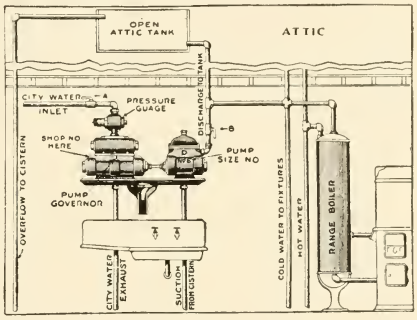


Plate E6951

Style D Pump is designed for use on all open tank soft water systems. It is equipped with the V & K Pressure Regulator and a full set of brass union fittings.

This pump may be used with either plain open tank system where the city water exhaust is piped to the sewer and wasted, or with the V & K Open Tank Economy System where the city water exhaust is piped to the house fixtures and utilized for flushing closets, etc.

Diagram shows Style D Pump installed on plain open tank system.

Size No.	Water Pressure Required Pounds: Style D for Plain Open Tank System	Style D for Open Tank Economy System	Size of Pipes to Use, Inches: Supply	Exhaust	Suction	Discharge	Price Style D Each
4	25 to 50	40 and above	½	¾	1	¾	52.00
5	8 " 25	15 to 30	¾	¾	¾	½	52.00
6	15 " 40	25 " 50	¾	¾	1	¾	52.00
7	40 and above	.....	½	¾	1	¾	52.00

Be sure to get the lowest city water pressure at the point where the pump is to be located, then choose the proper size pump for that pressure.

AMOUNT OF CITY WATER USED TO OPERATE V & K MOTOR PUMPS

Number of Pump	4	5	6	7
City Water Required to pump 1 Gallon of Soft Water..gallons	1	2½	1½	¾

EUREKA AND TRIUMPH WATER LIFTS

EUREKA WATER LIFTS

WITH AUTOMATIC CUT-OFF

When ordered by number only lifts will be furnished with city water pressure regulator. If the automatic cut-off is wanted, add the letter A to the number.

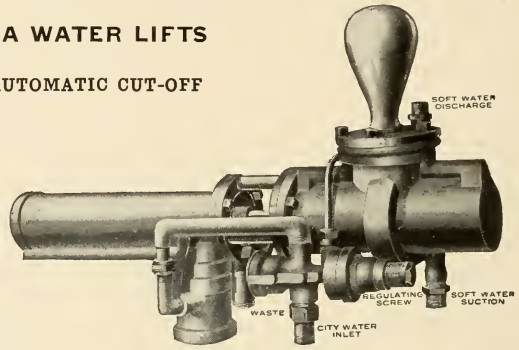


Plate E6961

Number	Cylinders, Inches Power	Suction	Stroke Inches	Dimens. Over All, In. Length	Height	Weight Pounds	Price, Each With City Water Pr. Reg.	With Auto. Cut-off
9	2½	1¾	5	25	13	45	**60.00**	**66.00**
10	2½	2½	5	25	13	45½	**60.00**	**66.00**
10½	2½	3⅛	6	28	17	55	**70.00**	**76.00**
11	3⅛	3⅛	6	28	17	66	**80.00**	**86.00**
12	3⅜	3⅜	6	29	18	87	**100.00**	**106.00**
13	3⅜	2⅜	6	29	18	85	**100.00**	**106.00**

TRIUMPH WATER LIFTS

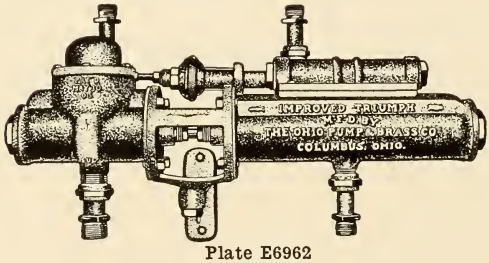


Plate E6962

Where in city water systems the water is hard or muddy or otherwise unfit for domestic purposes a water lift or motor pump may be employed to great advantage for furnishing good water where same is obtainable.

These lifts are operated by city water pressure and are designed to pump filtered water or rain water from a cistern directly into the house pipes and plumbing fixtures, or into an attic storage tank.

They may also be used to increase or re-enforce the city pressure for the purpose of raising water to the top floors of high buildings.

In ordering, be sure to specify whether lifts are wanted with or without automatic cut-off. If not specified, the regular model which has no cut-off will be sent.

Number	Cylinder, Inches Power	Suction	Stroke Inches	Size, Over All Length Inches	Height Inches	Width Inches	Weight Pounds	Price with Couplings and Strainers Each
1	2½	2	5	23	12	8	37	**55.00**
2	2½	2½	5	23	12	8	38	**55.00**
3	3	2½	5	23	12	8	38	**55.00**
4	3	2	5	23	12	8	38	**55.00**
5	2½	3	5	23	12	8	40	**60.00**
6	3	3	5	23	12	8	41	**60.00**
8	4½	3	5	23	14	9	55	**90.00**

LIFTS ADAPTED FOR CITY PRESSURE

City Water Pressure, pounds	25 to 40	40 to 60	20 to 35	15 to 25	60 or More	40 to 60	15 to 25
Number of Lifts to Use....	1	2	3	4	5	6	8

DEHN'S AUTOMATIC WATER SOFTENER AND SCALE REMOVING DEVICE

(Patented)

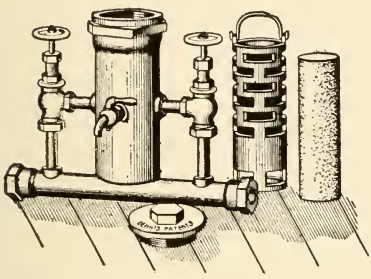


Plate E6971

This device will positively overcome the accumulation of lime, magnesia and other incrusting minerals in water backs, range coils, furnaces and heaters. The "KomposT" Brick will dissolve in the water regardless of how cold or how hot it may be. For an ordinary residence one brick will last several weeks. The device is simple and durable and easily installed and operated.

This is automatic in operation, and the feeder or chamber is supplied with a brick of a water-softening composition, the supply being automatically controlled by two valves on the apparatus, which can be regulated to such a point that all the water is neutralized before it enters the heating apparatus.

This composition is harmless when used in the water for culinary, drinking or toilet purposes, or, in other words, the water can be used for the same purposes as before the apparatus was installed.

By connecting the apparatus in the cold water supply pipe, all the cold water will be neutralized before entering the boiler and the water will circulate through the apparatus only when hot water is being drawn from the range boiler, hence it will be impossible to have any lime, magnesia or other incrusting minerals accumulate in the pipe connections, water back, heater or boiler.

It is claimed that one No. 6 "KomposT" Brick of water-softening composition will neutralize from 1000 to 3000 gallons of hard water, all depending upon the acidity of the water. You can figure out how long a "KomposT" Brick should last, which also depends on the quantity of hot water consumed. You can ascertain by the hardness of the water if the "KomposT" Brick is consumed. It is important to have a fixed time for charging the apparatus. The sediment cock at the bottom of range boiler should be opened at least once a week to blow out the sediment and slush to keep the water from getting turbid.

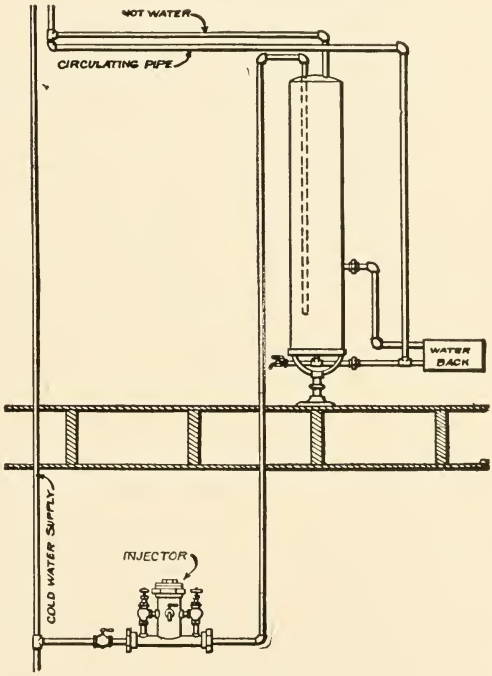


Plate E6972

Price, No. 5, ¾-inch (for Residence Use)	each	12.00
" " 6, 1 "	"	15.00
" " 6, 1¼ "	"	17.50
" " 6, 1½ "	"	20.00
" " 6, 2 "	"	23.00
" "KomposT" Bricks for No. 5	per dozen	3.00
" " " " " 6	"	4.20

Instructions for installation for various conditions sent upon application.

McDONALD PUMPS

INTERCHANGEABILITY

There is one feature peculiar to the McDonald line of pumps which is very desirable and much appreciated by dealers, i.e., the interchangeability of the different parts of our pumps by reason of uniformity in size at the necessary points.

The diameter of the upper part of the stock on Figs. 4½, 5, 5½, 6, 6½ and 306 pumps is the same, so that the caps on all of these pumps will interchange. The diameter of all other pumps of our make is likewise uniform, but larger in size than the foregoing, so that we have but two sizes throughout our entire line. The cap of No. 1 Fig. 9 will fit No. 1½ or No. 2 Fig. 9 stock, it will also fit Fig. 12 or Fig. 13, and in like manner Fig. 16 caps will interchange with Fig. 18 or Fig. 19, and the reverse.

The handles, fulcrums, etc., will also interchange in like manner. The caps of all cylinders of the same diameter will interchange, so that a 3-inch top or bottom cap may be used on 3-inch cylinders regardless of their length, and on either the iron or brass-lined type.

It will be readily seen that this important feature solves the perplexing problem of repairs for dealers, as a very few repairs will cover practically our entire line. Parts may be taken from one pump and sent out to repair another.

In ordering repairs, however, it is always well to give us the name of the part wanted, the number and figure of the pump, and any other lettering or numbering which may appear on the casting wanted.

The figure invariably designates the style of the pump, while the number designates the size of that particular style.

SET-LENGTH PUMPS

On the following pages we illustrate and describe our Set-Length Pumps, both lift and force.

As regularly furnished, the distance from flange of pump to bottom of cylinder measures 4 feet, thus constituting what is termed a 4-foot set, and this length will always be sent unless otherwise ordered.

When so ordered we furnish them in any length desired; in the northern part of the country they are frequently supplied with 5, 6 or 8-foot sets, and there is of course always an extra charge per foot beyond the regular 4-foot length.

The cylinders included in the price are invariably 10 inches long, but varying diameters, as noted in the list, and cylinders longer than 10 inches may be furnished, as directed, at an additional cost.

The figure designates the style of the pump standard, while the number denotes the size of the cylinder. Thus, No. 4 Fig. 6 means a Fig. 6 top with set-length fitted with a 3 x 10 cylinder.

BE SURE AND SPECIFY BOTH FIGURE AND NUMBER WHEN ORDERING.

All our set-length pumps have a small hole drilled in the pipe immediately above the cylinder, thus draining the pump to prevent freezing when not in use.

The pipe on all of our set-lengths screws into the standard at the spout, and (except on adjustable base set-length pumps) three wooden wedges are driven between the standard and the pipe at the base to hold the pipe rigidly in place, removing excessive strain at the threaded joint near the spout and aiding to maintain alignment.

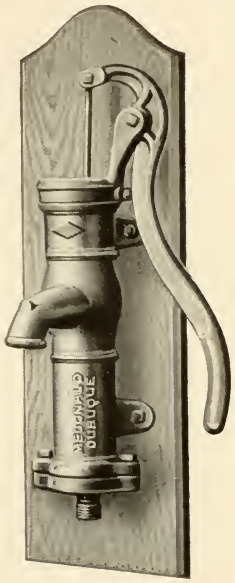
NEVER PUT MORE THAN ONE LENGTH (ABOUT 20 FEET) OF PIPE BELOW THE CYLINDER.

Set-length pumps can be furnished fitted with galvanized pipe and plunger rod, when so ordered, at a higher price than for black pipe and rod.

REVOLVING TOP CISTERN PUMPS

FIG. 1

FIG. 1½



These Pumps are designed for use on shallow wells and cisterns not over 25 feet deep.

FIG. 1 is usually mounted on a bracket alongside a kitchen sink, while FIG. 1½ is mounted on the plank as shown, which is bolted to the wall or a post.

The handle can be placed in any position by loosening the set screw in cap under the handle.

These pumps are fitted with trip valves so that by raising the handle until the plunger strikes and releases the lower valve, the cylinder is drained of water to prevent freezing.

The iron cylinders are bored true and highly polished to insure the least possible wear on plunger leathers. Only high-grade plunger and valve leathers are used in these pumps, assuring satisfactory service.

Always furnished with Brass Valve Seats.

All sizes of these pumps may be furnished for 1½-inch pipe.

Number of Pump.....	1	2	3	4	5	6
Size, Cylinder..... inches	2¼	2½	2¾	3	3¼	3½
" Suction Pipe ..... "	1	1	1¼	1¼	1¼	1½
Price, Fig. 1, Iron.....each	4.00	4.50	5.00	5.50	6.50	8.00
" " 1, Brass Lined..... "	6.00	7.00	8.00	10.00	13.00	18.00
" " 1½, Iron..... "	5.00	5.50	6.00	6.50	7.50	9.00
" " 1½, Brass Lined... "	7.50	8.00	9.00	11.00	14.00	19.00

Union Nut and Brass Tail piece for lead pipe suction, as shown on Fig. 1½, is only furnished, for either pump, at an extra charge.

PITCHER SPOUT PUMPS

CLOSED TOP

FIG. 2
IRON, BRASS-LINED
OR PORCELAIN-LINED

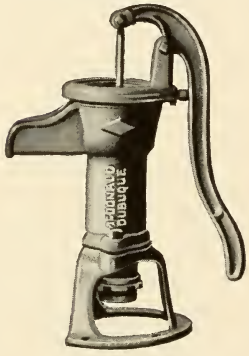
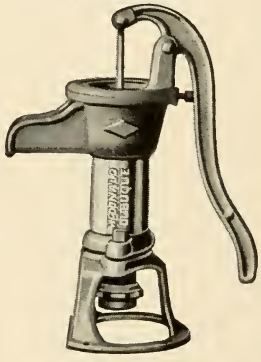


FIG. 2
POLISHED BRASS OR
NICKEL-PLATED BRASS



These pumps are used on shallow wells and cisterns not over 25 feet deep, and are usually mounted on brackets to furnish water for kitchen sinks, though used extensively for drive wells also.

They are well made of best material, and are furnished with Polished Iron, Brass-Lined, Porcelain-Lined, Polished Brass or Nickel-Plated Brass Cylinders, as listed below.

They all have revolving caps, so that handle can be placed where desired. They have trip valves so that by raising the handle until the plunger strikes and releases the lower valve, the cylinder is drained of water to prevent freezing.

We recommend the use of these pumps with **POLISHED OR NICKEL-PLATED BRASS CYLINDERS,** as the heavy seamless brass tubing will not corrode, and plunger leathers will wear much longer than in an iron cylinder. The Brass Cylinders are either Polished Brass or Nickel-Plated Brass, and are attractive, although we recommend the Nickel-Plated Cylinder as much more attractive, and easier to keep bright and clean. All Pitcher Spout Pumps with Brass Cylinders have Brass Valve Seats.

Unless otherwise ordered, all Pitcher Spout Pumps will be fitted for iron pipe only.

If Lead Pipe Ferrule is wanted, there will be a small extra charge.

If Brass Valve Seat is wanted in Iron, Brass-Lined, or Porcelain-Lined Pitcher Spout Pumps, there will be a small extra charge.

Any size of these pumps may be tapped for 1½-inch pipe, if desired.

Number of Pump	1	2	3	4	5	6
Size Cylinder.....inches	2½	3	3½	4	4½	5
" Suction Pipe..... "	1	1¼	1¼	1½	1½	2½
Price, Fig. 2, Iron.....each	**4.25**	**4.75**	**5.25**	**6.25**	**9.50**	**17.00**
" " 2, Brass-Lined..... "	**6.50**	**7.25**	**8.00**	**9.00**	**12.50**	**22.00**
" " 2, Porcelain-Lined... "	**6.50**	**7.25**	**8.00**	....	.....	.....
" " 2, Polished Brass... "	**9.00**	**10.00**	....	....	.....	.....
" " 2, Nickel-Plated Brass "	**10.00**	**11.00**	....	....	.....	.....

SHALLOW WELL SET-LENGTH PUMPS

WINDMILL STYLE **ANTI-FREEZING**

FIG. 4½

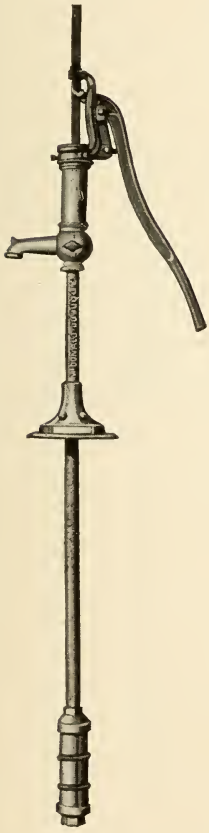
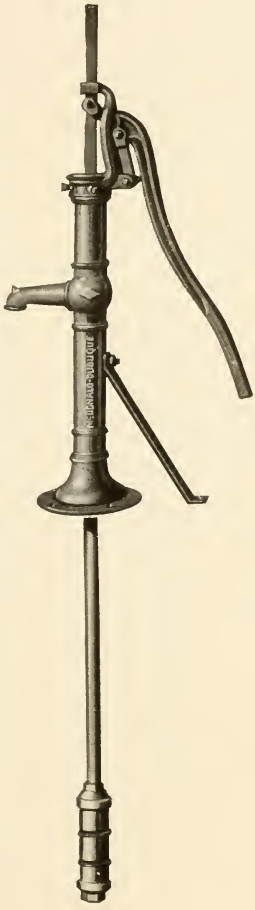


FIG. 5



These illustrations show two of our Windmill Style, Anti-freezing Set-length Pumps for shallow wells and cisterns. They are light, but well proportioned, of ample strength for shallow wells.

SLIDE RODS are not regularly sent long enough for windmill attachment, but will be sent long enough when so ordered. **CAPS** are fastened to the standard by three set screws, which permit the handle to be set in any direction. **FORGED PINS,** connecting the cap, handle and fulcrum are larger and better than the small bolts so commonly used. Repairs of these two pumps interchange.

FIG. 4½ has a heavy, adjustable, oval split-grip base, fastened by two strong bolts, with lugs on the inner side which give large gripping surface and hold the base firmly to the pipe.

FIG. 5 has a solid stock, tapped just below the spout for the pipe. Three wooden wedges are driven between the base of the pump and the pipe, to hold the pipe in position and prevent injury to the threaded joint at the spout.

Both of these pumps are furnished with our regular 3 x 10 Cylinders, equipped with High Grade Valve and Plunger Leathers. Iron Cylinders are always sent with these pumps, unless Brass-lined or Brass Body are specified.

Set-lengths regularly measure **4 FEET** from base to bottom of Cylinder, but longer Set-lengths will be furnished, at an extra charge.

Always fitted for 1¼-inch pipe. **STROKE** is 6 inches.

Never use more than 20 feet of pipe below the Cylinder.

	Size Cylinder Inches	Price		
		Iron Cylinder	Brass-Lined Cylinder	Brass Body Cylinder
Fig. 4½, No. 4	3x10	9.50	11.50	13.50
" 5 " 4	3x10	9.50	11.50	13.50

SHALLOW WELL SET-LENGTH PUMPS

REVOLVING TOP

FIG. 5½

These illustrations show our most popular Set-Length Pumps for shallow wells and cisterns.

They are light and well proportioned, with all the wearing parts sufficiently strong and heavy. Forged Pins, connecting the Cap, Handle and Pitman, are larger and better than the small bolts so commonly used for this purpose. Repairs of these pumps interchange.

PITMAN, connecting the handle to the plunger rod is strong, and the set screw connecting it to the rod is convenient, giving a much more durable and satisfactory connection than the ordinary forged loop on the end of the plunger rod.

CAP is fastened to the standard by a set screw, which permits the handle to be placed in any desired position.

FIG. 6 has a solid stock, tapped immediately below the spout for the pipe. Three wooden wedges are driven between the base of standard and the pipe, to hold the pipe in position and prevent injury to the threaded joint at the spout.

FIG. 5½ has a heavy, adjustable, split-grip, oval base, fastened by two strong bolts, and with lugs on the inner side, which gives large gripping surface to hold base firmly to the pipe.

Both Pumps are furnished with our regular 3x10 Cylinders, equipped with High-Grade Valve and Plunger Leathers. Iron Cylinders are always sent with these pumps, unless Brass-Lined or Brass Body are specified.

ANTI-FREEZING

FIG. 6

Set Lengths regularly measure **4 FEET** from base to bottom of Cylinder, but for cold climates, we can furnish them with Cylinders set down further, when so ordered, at an extra price.

Always fitted for 1¼-inch pipe. **STROKE** of Pumps, 6 inches.

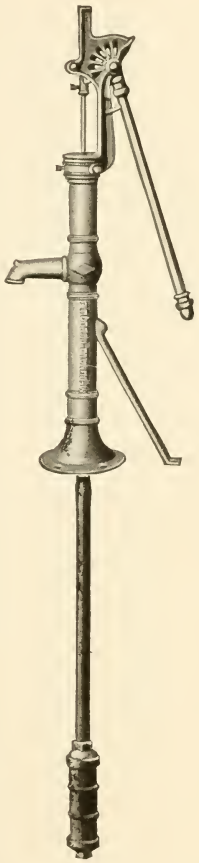
Never use more than 20 feet of pipe below Cylinder.

	Size, Cylinder Inches	Price, Each — Iron Cylinder	Brass-Lined Cylinder	Brass Body Cylinder
Fig. 5½ No. 4	3x10	**8.50**	**10.50**	**12.50**
" 6 " 4	3x10	**8.50**	**10.50**	**12.50**

RACK AND PINION SET-LENGTH LIFT PUMP

REVOLVING TOP

Fig. 306



The Rack and Pinion Anti-freezing set-length lift pump for use on cisterns or shallow wells.

The tight or closed top, where the plunger rod passes through the cap, prevents anything getting into the cylinder and impeding its action.

The rod, working on an absolute vertical line, avoids friction.

The roller, opposite the gear segment, minimizes friction when operating the pump. The gear segment and gear rack are strong and substantial and are encased by the cap, so that it is absolutely impossible to cause injury to the person operating the pump, by getting the fingers caught in the teeth of the gear.

The plunger rod is attached to the gear segment with a ½-inch steel set screw, which is the most convenient method.

The roller is held in place by a 7/16-inch wrought pin. The plunger rod is ⅜-inch. The cap is fastened to the standard of the pump by three ½-inch steel set screws and the handle is connected to the cap by a ½ x 3¾-inch wrought pin. This gives large wearing surface at this important point.

The handle is wrought iron with a cast ornament at the bottom and is of ample strength for all purposes.

We have, in this pump, one of reasonably light construction, yet strong enough to give good service, and have strengthened all points to eliminate the chance of breakage. It is made of the best grade, close grain, grey cast iron.

The set-length pipe is drilled for waste just above the cylinder to drain the pump and prevent freezing in extreme weather.

Set-length pipe screws into standard at the spout.

Three wood wedges, driven into the standard of the pump, around set-length pipe at the base, hold this pipe rigidly in place and prevent weakening the threaded joint at the spout.

The set-length measures 4 feet from base to bottom of cylinder, but can be furnished longer, at an extra cost.

Always fitted for 1¼-inch pipe. **STROKE** of Pump, 6 inches.

Equipped with our regular 3 x 10 cylinders, having High-grade Plunger and Valve Leathers. Iron Cylinders will always be sent, unless Brass-Lined or Brass Body are specified.

Never use more than 20 feet of pipe below the Cylinder.

	Size Cylinder Inches	Price		
		Iron Cylinder	Brass-Lined Cylinder	Brass Body Cylinder
Fig. 306, No. 4	3x10	9.75	11.75	13.75

SHALLOW WELL SET-LENGTH PUMPS

REVOLVING TOP ANTI-FREEZING

FIG. 4

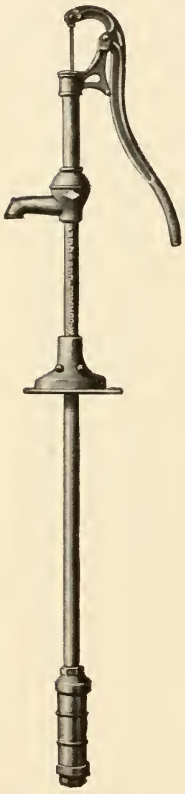


FIG. 6½

These illustrations show two of our Set-Length Pumps for shallow wells and cisterns.

FIG. 4 is our lightest set-length pump. The pipe between the spout and cap is 1½ inch, and the cap is fastened to this pipe by a set screw, so cap can be turned in any direction. The pipe below the spout is 1¼ inch, extending to the cylinder below. Adjustable oval split grip base is heavy, with lugs on the inner surface to give large gripping surface, fastened by two strong bolts which hold base firmly to the pipe.

FIG. 6½ is a **CLOSE TOP SET-LENGTH PUMP,** light in weight, but well proportioned and of ample strength for shallow wells. Cap is fastened to the standard by a set screw which permits the handle to be set in any position. Oscillating Fulcrum, connects the cap and handle, and the ⅝-inch piston rod working through the cap, is connected to the handle by a set screw in the cast iron pitman. Forged Pins, connecting cap, fulcrum and handle, are larger and better than the small bolts so commonly used. Tight or Closed Tops prevent dropping of nails, stones, etc., into the top of the pump. The pipe screws into the standard just below the spout, and three wooden wedges are driven between the base of the pump and the pipe, to hold the pipe in position, and prevent injury to the threaded joint at the spout.

Both Pumps are furnished with our regular 3 x 10 Cylinders, equipped with High Grade Valve and Plunger Leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

Set-Lengths regularly measure **4 FEET** from base to bottom of Cylinder, but for cold climates we can furnish them with cylinders set down further, when so ordered, at an extra price.

Always fitted for 1¼-inch pipe. **STROKE** of Pumps, 6 inches.

Never use more than 20 feet of pipe below cylinder.

	Size Cylinder Inches	PRICE Iron Cylinder	Brass-Lined Cylinder	Brass Body Cylinder
Fig. 4, No. 4	3x10	**7.75**	**9.75**	**11.75**
" 6½, " 4	3x10	**9.00**	**11.00**	**13.00**

HEAVY SET-LENGTH PUMPS

ANTI-FREEZING REVOLVING TOP

FIG. 7

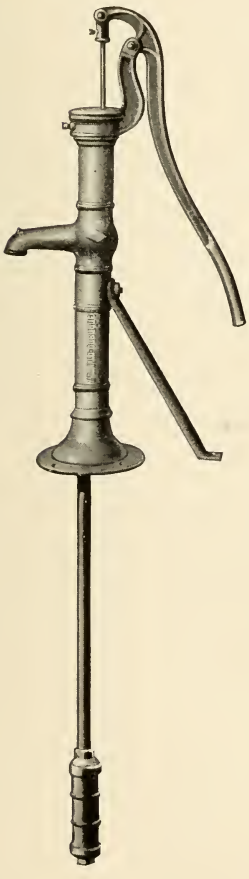
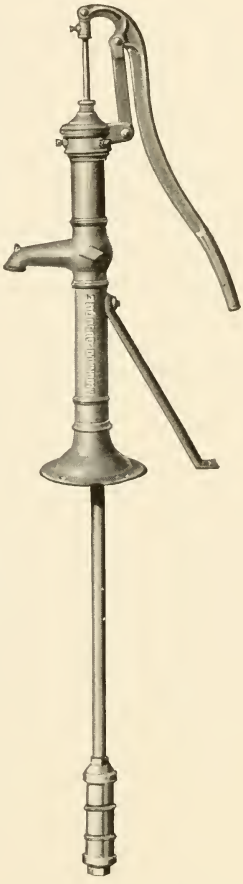


FIG. 8



These are heavy Anti-Freezing Set-Length Pumps, well proportioned, substantial in every respect, for use on shallow wells, drive wells or cisterns.

Plunger rod is 7/16-inch, and is connected to the handle by means of a cast iron pitman with 1/2-inch set screw, a very strong, durable and convenient connection. Pipe screws into the standard at the spout. Three wooden wedges are driven between the base of standard and the pipe, to hold the pipe in position, and prevent injury to the threaded joint at the spout. Forged Pins, connecting caps, handles and fulcrums, are larger and better than the small bolts so commonly used.

FIG. 7 has an Open Top or Cap, fastened to the standard by a set screw, so handle can be set in any desired position.

FIG. 8 has a Tight or Closed Cap, with a 11/16-inch piston rod working through it. Cap is fastened to the standard by set screws, so handle can be set in any direction. The Oscillating Fulcrum and Closed Cap make this an easy working pump and prevent the dropping of stones, sticks, etc., into the pump through the cap.

Both Pumps are furnished with our regular 10-inch Cylinders, equipped with High Grade Valve and Plunger Leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

Set-Lengths regularly measure **4 FEET** from base to bottom of cylinder, but longer set-lengths can be furnished, at an extra charge.

Always fitted for 1¼-inch pipe. **STROKE** of Pump, 6 inches.

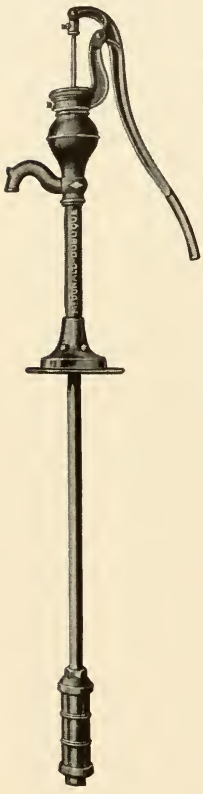
Never use more than 20 feet of pipe below the cylinder.

	Size Cylinder Inches	Price — Iron Cylinder	Brass-Lined Cylinder	Brass Body Cylinder
Fig. 7, No. 4	3 x10	**9.00**	**11.00**	**13.00**
" 7, " 5	3¼x10	**9.50**	**11.75**	**13.75**
" 7, " 6	3½x10	**10.00**	**12.25**	**14.25**
" 8, " 4	3 x10	**9.50**	**11.50**	**13.50**
" 8, " 5	3¼x10	**10.00**	**12.25**	**14.25**
" 8, " 6	3½x10	**10.50**	**12.75**	**14.75**

ADJUSTABLE BASE SET-LENGTH PUMPS

SIPHON SPOUT ANTI-FREEZING REVOLVING TOP

FIG. 98



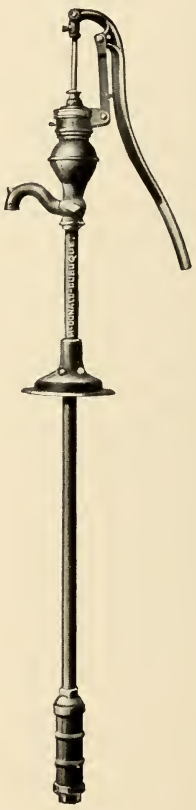
These are our Half-stand or Adjustable Base Set-Length Pumps, with Siphon Spouts, for cisterns, shallow wells, or drive wells. They are substantially built, well proportioned and all wearing parts of ample strength. The **STOCKS** have a reservoir above the spout to prevent water spurting out of cap around the rod when operated rapidly. The Pipe between Stock and Base is 1½-inch, while the pipe below the base to the Cylinder is 1¼-inch.

ADJUSTABLE, OVAL, SPLIT-GRIP BASE is heavy, with lugs on the inner surface to give large gripping surface, fastened to the 1½-inch pipe by two strong bolts which hold base firmly to the pipe. **CAST IRON PITMAN** affords the most serviceable and convenient method of connecting the plunger rod to the handle, and the steel set screw holds the plunger rod firmly to the pitman. **FORGED PINS**, connecting Caps, handles and fulcrums, are larger and better than the small bolts so commonly used.

FIG. 98 has an Open Cap or Top, fastened to the standard by a set screw, so handle can be set in any desired position.

FIG. 100 has a Tight or Closed Cap, with a 11/16-inch Piston Rod working through it. Cap is fastened to the standard by a set screw, so handle can be set in any desired position. The Oscillating Fulcrum and Closed Cap make this an easy-working pump and prevents the dropping of stones, sticks, etc., into the pump through the cap.

FIG. 100



Both pumps are furnished with our regular 10-inch Cylinders, equipped with Brass Valve Seats and High Grade Valve and Plunger Leathers. Always sent with Iron Cylinders unless Brass Body or Brass-lined are specified.

Set-Lengths regularly measure **4 FEET** from base to bottom of Cylinder, but longer set-lengths can be furnished, at an extra charge.

Always fitted for 1¼-inch pipe. **STROKE** of Pump, 6 inches.

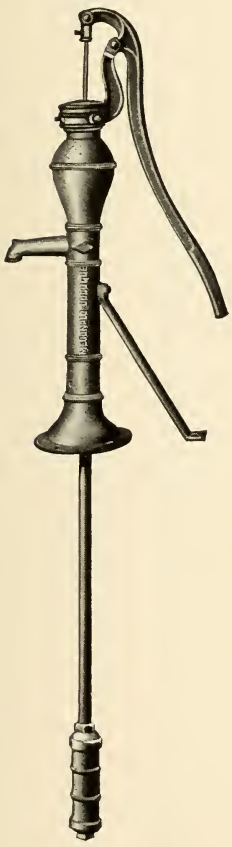
Never use more than 20 feet of pipe below the Cylinder.

	Size Cylinder Inches	PRICE Iron Cylinder	Brass-lined Cylinder	Brass Body Cylinder
Fig. 98, No. 4	3x10	**9.50**	**11.50**	**13.50**
" 100, " 4	3x10	**10.00**	**12.00**	**14.00**

HEAVY SET-LENGTH PUMPS

ANTI-FREEZING REVOLVING TOP

FIG. 7½

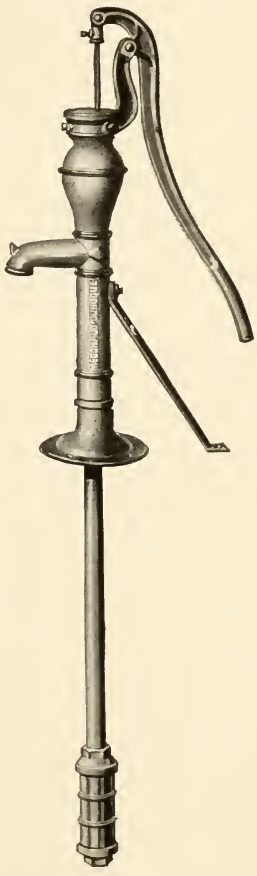


These are heavy Anti-Freezing Set-Length Pumps, for use on shallow wells, drive wells or cisterns. They have globe shaped reservoirs above the spout, so that large quantities of water can be pumped without any danger of discharging water at the cap. These are attractive pumps, strong, substantial and well built, making them most desirable pumps for the heavier class of work on shallow wells. Heavy Forged Pins are used instead of bolts to connect cap, handle and pitman. The Plunger Rod is 7/16-inch, and is connected to the pitman with a ½-inch steel set screw. The Pitman with set screw makes the most convenient and serviceable connection between handle and plunger rod. The pipe screws into the standard at the spout. Three wooden wedges are driven between base of pump and the pipe to hold the pipe in position and prevent injury to the threaded joint at the spout. **STROKE** of Pumps, 6 inches.

FIG. 7½ has an Open Top or Cap, fastened to the standard by a set screw. Pipe is 1¼-inch.

FIG. 27 has an Open Top or Cap, fastened to the standard by 3 set screws. This pump is larger than Fig. 7½, and has 2-inch pipe, with 4-inch cylinder. **IT IS DESIGNED FOR USE WHERE LARGE VOLUMES OF WATER** are wanted from shallow wells and cisterns. It has quite largely displaced wood pumps, being of equal capacity, and very much more durable, and stronger and will not split in service. **SPOUT IS EXTRA LARGE.**

FIG. 27



Both Pumps are furnished with our regular 10-inch cylinders, equipped with High Grade Valve and Plunger Leathers. Always sent with Iron Cylinders unless Brass-lined or Brass Body are specified.

Set-Lengths regularly measure **4 FEET** from base to bottom of cylinder, but longer set-lengths can be furnished, at an extra charge.

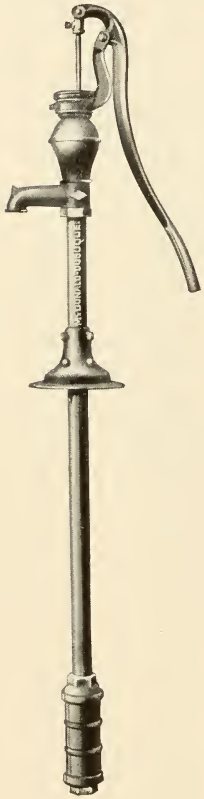
Never use more than 20 feet of pipe below the cylinder.

	Size Cylinder Inches	Size Pipe Inches	PRICE Iron Cylinder	Brass-lined Cylinder	Brass Body Cylinder
Fig. 7½, No. 4.....	3 x10	1¼	**9.50**	**11.50**	**13.50**
" 7½, " 5.....	3¼x10	1¼	**10.00**	**12.25**	**14.25**
" 7½, " 6.....	3½x10	1¼	**10.50**	**12.75**	**14.75**
" 27 " 8.....	4 x10	2	**14.00**	**16.75**	**18.75**

HEAVY SET-LENGTH PUMPS

ADJUSTABLE BASE **ANTI-FREEZING**

FIG. 96



These are **HEAVY ANTI-FREEZING SET-LENGTH PUMPS**, designed for heavy work, especially where **LARGE VOLUMES OF WATER** are wanted from shallow wells and cisterns. These pumps have displaced wood pumps to a great extent, as they have large capacity, are more durable and stronger, and will not split or rot.

GLOBE RESERVOIRS above the spouts prevent the water raising high enough to spurt out of the cap when pumps are operated rapidly, and **SPOUTS ARE EXTRA LARGE** to give ample flow for large amounts of water. Fitted for 2-inch pipe, which screws into the body directly below the spout.

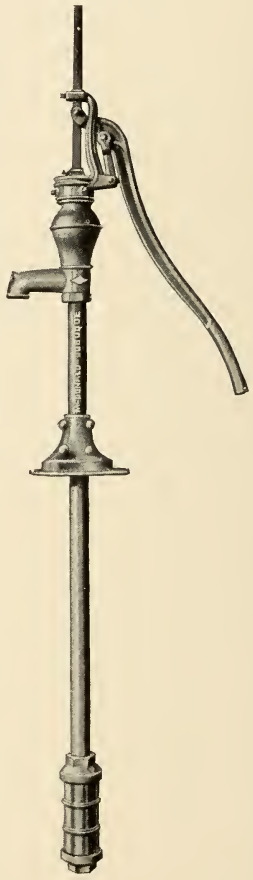
ADJUSTABLE, SPLIT-GRIP BASES are heavy, with large gripping surface and 4 strong bolts. They are oval to give firm bearing on the platform.

LARGE FORGED STEEL PINS are used to connect caps, handles and fulcrums, and are better than the small bolts so commonly used. **STROKE** of Pumps, 6-inches.

FIG. 96 is for hand use only, and has an Open Cap, fastened to the standard by 3 set screws. **PITMAN** connecting Plunger Rod to Handle, is large and strong, with ½-inch set screw to attach the Plunger Rod to Pitman securely and conveniently.

FIG. 95 is for operation by hand, windmill or Pump Jack, and is of the Windmill Type. **CAP** is fastened to the standard by 3 set screws and handle can be set in any position. **REMOVABLE CHILLED BOXES** in the top and bottom of the cap take the wear of the slide rod, and are easily replaced when worn.

FIG. 95



Both pumps are furnished with our regular 4 x 10 Cylinders, equipped with High Grade Valve and Plunger Leathers. Iron Cylinders are always sent with these pumps, unless Brass-Lined or Brass Body are specified.

Set-Lengths regularly measure **4 FEET** from base to bottom of Cylinder, but longer Set-Lengths can be furnished, at an extra charge.

Never use more than 20 feet of pipe below Cylinder.

	Size Cylinder Inches	Size Pipe Inches	PRICE Iron Cylinder	Brass-Lined Cylinder	Brass Body Cylinder
Fig. 96, No. 8.....	4x10	2	**12.50**	**15.25**	**17.25**
" 95, " 8.....	4x10	2	**14.00**	**16.75**	**18.75**

HEAVY SET-LENGTH PUMPS

FOR HAND OR WINDMILL — ANTI-FREEZING

FIG. 8½

These are Heavy, Anti-Freezing, Set-Length Pumps, with windmill head, for use on shallow wells, cisterns, or drive wells. When desired for use on wells more than 25 feet deep, lowering the cylinder by lengthening the pipe and rod, will make them very satisfactory for wells from 50 to 60 feet deep.

REVOLVING CAPS are fastened to the standards by three set screws. **REMOVABLE BOXES** in the caps take the wear of the slide rod, and are easily replaced. **SLIDE ROD** is 1 x ½ inch, welded to 7/16-inch plunger rod. All parts are strong and well proportioned. **FORGED STEEL PINS** ⅝-inch diameter, connect the caps, fulcrums and handles, and are better than the small bolts so commonly used. Repairs of these pumps will interchange.

FIG. 8½ has a solid stock, tapped just below the spout for 1¼-inch pipe. Three wooden wedges are driven between the base of standard and the pipe, to hold the pipe in position, and prevent injury to the threaded joint at the spout.

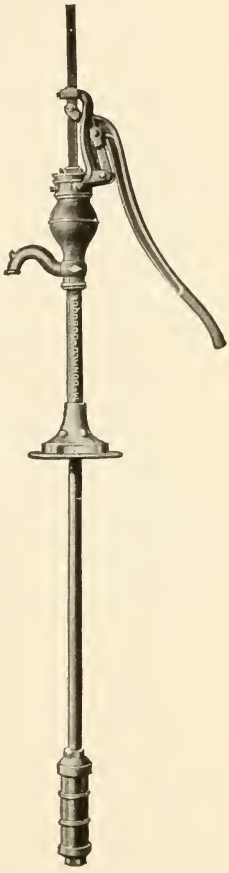
FIG. 102 has an Adjustable, Split Grip, Oval Base, firmly fastened to the pipe by strong bolts. **STOCK** has a large reservoir above the siphon spout, and is tapped for 1½-inch pipe. Pipe from stock to base is 1½-inch, while 1¼-inch pipe extends from the base to the cylinder.

Both Pumps are furnished with our regular 10-inch cylinders, equipped with High Grade Valve and Plunger Leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

Set-Lengths regularly measure **4 FEET** from base to bottom of cylinders, but longer set-lengths can be furnished at an extra charge.

Never use more than 20 feet of pipe below the cylinder.

FIG. 102



Always fitted for 1¼-inch pipe. **STROKE** of Pumps, 6 inches.

	Size Cylinder Inches	Price — Iron Cylinder	Brass-lined Cylinder	Brass Body Cylinder
Fig. 8½, No. 4	3 x10	**10.00**	**12.00**	**14.00**
" 8½, " 5	3¼x10	**10.50**	**12.75**	**14.75**
" 8½, " 6	3½x10	**11.00**	**13.25**	**15.25**
" 102, " 4	3 x10	**11.00**	**13.00**	**15.00**

HEAVY WINDMILL SET-LENGTH PUMPS

FOR HAND OR WINDMILL USE

FIG. 12

ANTI-FREEZING

FIG. 28

These are Extra Heavy Set-Length Pumps, with windmill head for use on shallow wells, cisterns and drive wells, intended for heavy duty.

REVOLVING CAPS are fastened to the standards with three set screws. **REMOVABLE BOXES** in the caps, take the wear off the slide rod, and are easily replaced when worn. **SLIDE RODS** are 1 x ½ inch welded to the ⅞-inch plunger rod. **CAPS, HANDLES** and **FULCRUMS** are extra heavy, and are connected by ⅝-inch **FORGED STEEL** Pins, which are better than the small bolts, so commonly used. **STOCKS** are heavy, with a **GLOBE SHAPED RESERVOIR** above the spout to prevent the water raising high enough to spurt out of the cap when pumps are operated rapidly. Repairs of these pumps will interchange. **STROKE** of Pumps, 6 inches.

FIG. 12 SET-LENGTH PUMP is tapped just below the spout for 1¼-inch pipe, and three wooden wedges are driven between the base of the pump and the pipe to hold the pipe in position and prevent injury to the threaded joint at the spout.

FIG. 28 SET-LENGTH PUMP is intended for use where large volumes of water are wanted from shallow wells and cisterns. It has an **EXTRA LARGE SPOUT** to give ample flow for large amounts of water. **STOCK** is tapped just below the spout, for 2-inch pipe.

Both Pumps are furnished with our regular 10-inch Cylinders, equipped with High Grade Valve and Plunger Leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

Set-Lengths regularly measure **4 FEET** from base to bottom of cylinder, but longer set-lengths can be furnished, at an extra charge.

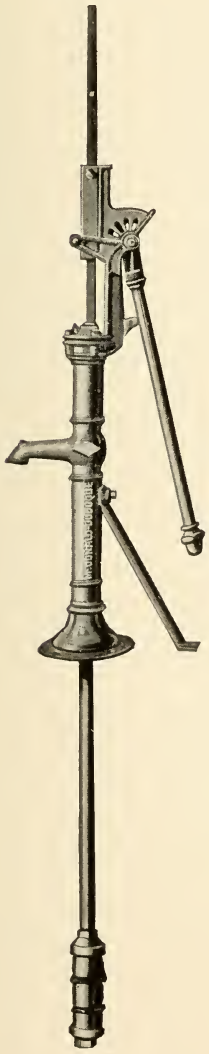
Never use more than 20 feet of pipe below the cylinder.

	Size Cylinder Inches	Size Pipe Inches	PRICE		
			Iron Cylinder	Brass-Lined Cylinder	Brass Body Cylinder
Fig. 12, No. 4	3 x10	1¼	**11.00**	**13.00**	**15.00**
" 12, " 5	3¼x10	1¼	**11.50**	**13.75**	**15.75**
" 12, " 6	3½x10	1¼	**12.00**	**14.25**	**16.25**
" 28, " 8	4 x10	2	**16.00**	**18.75**	**20.75**

RACK AND PINION SET-LENGTH LIFT PUMPS

FOR HAND AND WINDMILL USE

FIG. 385



These Rack and Pinion Pumps are strong and easy to operate, and are intended for use over shallow wells and cisterns, where subjected to severe service. The leverage on Rack and Pinion Pumps is better than on other styles, as it is only 3 inches from center of handle pin to teeth of gear, while ordinary pumps are 4½ inches from handle pin to center of slide rod. The Slide Rods work in absolutely vertical lines, and the roller opposite the rack minimizes the friction. Removing the pin which connects the rack to the slide rod, permits the slide rod to work with windmill or pump jack without moving the handle. All parts are strong and substantial. Handle is wrought iron, and gears are thoroughly encased to prevent injury to the operator. Caps are attached to the standard by 3 strong hook bolts, and handle can be placed in any position. **STROKE** of Pumps, 6 inches.

FIG. 385 PUMPS are tapped just below the spout, for 1¼ inch pipe, and three wooden wedges are driven between base of pump and the pipe, to hold the pipe in position and prevent injury to the threaded joint at the spout.

FIG. 328 PUMPS are intended for use where large volumes of water are wanted from shallow wells and cisterns. They have **EXTRA LARGE SPOUTS,** to give ample flow for large amounts of water. Stock is tapped just below the spout, for 2-inch pipe.

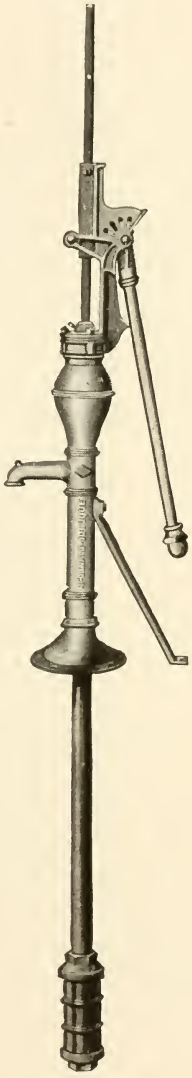
Both pumps are furnished with our regular 10-inch Cylinders, equipped with Brass Valve Seats and High Grade Valve and Plunger Leathers. Always sent with Iron Cylinder, unless Brass Lined or Brass Body is specified.

Set-Lengths regularly measure **4 FEET** from base to bottom of Cylinder, but longer Set-Lengths can be furnished, at an extra charge.

Never use more than 20 feet of pipe below the Cylinder.

ANTI-FREEZING

FIG. 328



	Size Cylinder Inches	Size Pipe Inches	Price — Iron Cylinder	Brass-lined Cylinder	Brass Body Cylinder
Fig. 385, No. 4	3 x10	1¼	11.50	13.50	15.50
" 385, " 5	3¼x10	1¼	12.00	14.25	16.25
" 385, " 6	3½x10	1¼	12.50	14.75	16.75
" 328, " 8	4 x10	2	17.50	20.25	22.25

SET-LENGTH FORCE PUMPS

FOR HAND USE ANTI-FREEZING

FIG. 15

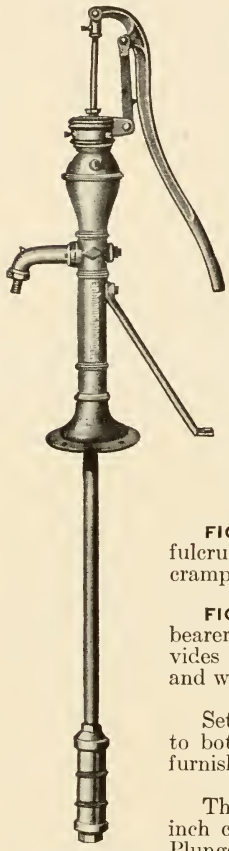


FIG. 15½

These Force Pumps are strong and serviceable, intended for use over shallow wells and cisterns, and can be used for forcing water through a hose, or through pipes attached to the back outlet.

STOCKS are tapped in rear of spout for 1-inch or 1¼-inch pipe, so water can be conducted to any desired point. **SPOUTS** are bolted to the standard, and the **COCK SPOUTS**, shown below, will interchange with the Plain Spout. All spouts have a union connection for ¾-inch hose. Pipe screws into the standard at the spout, and three wooden wedges are driven between base of pump and the pipe, holding the pipe firmly in position and preventing injury to the threaded joint at the spout. **AIR CHAMBER**, above the spout has an inner tube running down from the stuffing box to prevent the escape of air around the piston rod. **PISTON ROD** is polished steel, but brass covered piston rods can be furnished at an additional cost. **STUFFING NUT** is brass. **STROKE** of Pumps, 6 inches.

FIG. 15 SET-LENGTH PUMP has an oscillating fulcrum, which relieves side pressure and avoids cramping of the piston rod and wear at the stuffing box.

FIG. 15½ SET-LENGTH PUMP has a solid cap or bearer, and an extra link below the end of handle provides necessary play to avoid cramping of piston rod and wear at the stuffing box.

Set-Lengths regularly measure **4 FEET** from base to bottom of cylinder, but longer set-lengths can be furnished at an extra charge.

These Pumps are furnished with our regular 10-inch cylinders, equipped with High Grade Valve and Plunger Leathers.

Never use more than 20 feet of pipe below the cylinders.

Regularly sent with 3 x 10 Iron Cylinder and Plain Spout, with 1-inch Back Outlet. If wanted with other sizes or kinds of cylinders, or with cock spout, be sure and specify in ordering.

COMPRESSION COCK SPOUT

LEVER HANDLE COCK SPOUT

	Size Cylinder Inches	Size Pipe Inches	PRICE — Iron Cylinder	Brass-lined Cylinder	Brass Body Cylinder
Fig. 15, No. 4	3 x10	1¼	**12.50**	**14.50**	**16.50**
" 15, " 5	3¼x10	1¼	**13.00**	**15.25**	**17.25**
" 15, " 6	3½x10	1¼	**13.50**	**15.75**	**17.75**
" 15½, " 4	3 x10	1¼	**12.50**	**14.50**	**16.50**
" 15½, " 5	3¼x10	1¼	**13.00**	**15.25**	**17.25**
" 15½, " 6	3½x10	1¼	**13.50**	**15.75**	**17.75**

Add for Cock Spouts, either kind 2.50.

SET-LENGTH FORCE PUMPS

ADJUSTABLE BASE ANTI-FREEZING

These Set-Length Force Pumps are Anti-Freezing, and have Adjustable, Oval, Split-Grip Bases, firmly fastened to the pipe by strong bolts. Air Chambers, above the spouts, have an inner tube extending down from the Stuffing Box to prevent the escape of air around the Piston Rods. **PISTON RODS** are polished steel. **STUFFING NUTS** are brass. **CAPS** are fastened to the standards by 3 set screws. Union Hose Connections are regularly sent for ¾-inch hose, but can be sent for 1-inch, if desired. They are suitable for use over shallow wells and cisterns. Pipe screws into the standard just below the spout.

FIG. 110

FIG. 110 Hand Set-Length Force Pump has a solid cap or bearer, and an extra link below the end of the handle provides necessary play to avoid cramping of Piston Rod and wear at the Stuffing Box. It has a Siphon Spout as shown. The pipe between Stock and Base is 1½-inch pipe, below the base is 1¼ inch.

FIG. 216½

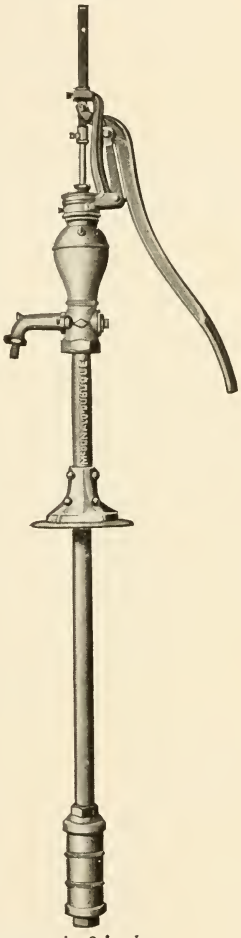


FIG. 216½ Windmill Set-Length Force Pump is intended for use where the duty is severe, and large volumes of water are required from shallow wells and cisterns. It is tapped in rear of spout for 1-inch pipe, but may be tapped as large as 2 inch, if desired, at the same price. It is shown with Plain Spout bolted to the standard, but either of the spouts shown below will interchange with the plain spout. This pump can be operated by hand, Windmill or Pump Jack. The pipe from stock to Cylinder is 2 inches. **CAPS** have Removable Chilled Boxes to take the wear of the slide rod, easily replaced when worn.

Set-Lengths regularly measure **4 FEET** from base to bottom of Cylinder, but longer set-lengths can be furnished, at an extra cost.

These pumps are furnished with our regular 10-inch Cylinders, equipped with High Grade Valve and Plunger Leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

Never use more than 20 feet of pipe below the Cylinder. **STROKE** is 6 inches.

	Size Cylinder Inches	Size Pipe Inches	PRICE Iron Cylinder	Brass-lined Cylinder	Brass Body Cylinder
Fig. 110, No. 4	3x10	1¼	12.50	14.50	16.50
" 216½, " 8	4x10	2	17.00	19.75	21.75

Extra for Cock Spout on Fig. 216½, 2.50.

BOLTED SPOUTS FOR FIG. 216½

PLAIN

SIPHON

LEVER HANDLE

COMPRESSION

EXTRA HEAVY SET-LENGTH FORCE PUMPS

ANTI-FREEZING WITH AIR CHAMBERS ON SPOUT

These are our Extra Heavy Set-Length Force Pumps with Air Chambers bolted to the standards, for use on shallow wells and cisterns. They are tapped in rear of spout for 1-inch pipe, but may be tapped for 1½-inch pipe, without extra charge. Hose clevises for ¾ or 1-inch hose are always sent with these pumps. **COCK SPOUT,** screwed into air chamber in place of the spout, can be furnished at an extra cost. **PISTON RODS** are polished steel, but brass-covered piston rods can be furnished at an extra cost. **STUFFING NUT** is brass. **CAPS** are fastened to the standards by three set screws. Pipe screws into the standards at the spout. **STROKE** of Pumps, 6 inches.

FIG. 18

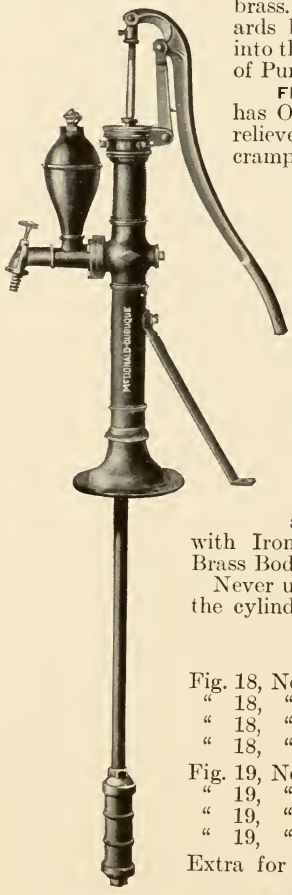


FIG. 18 for hand use only, has Oscillating Fulcrum which relieves side pressure and avoids cramping of the piston rod and wear at the stuffing box.

FIG. 19

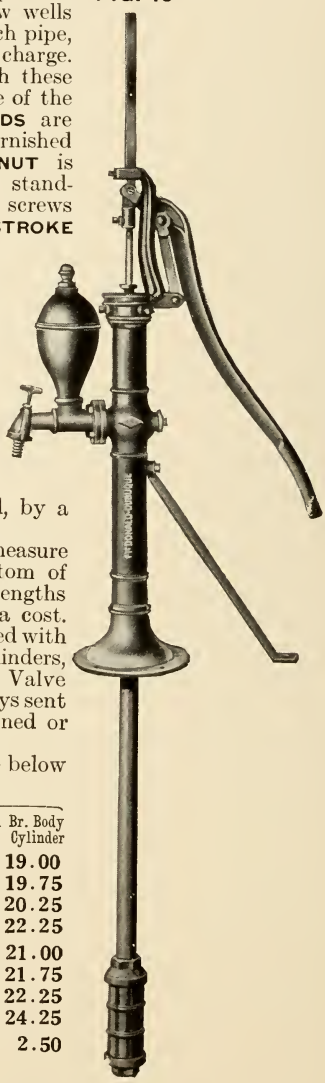


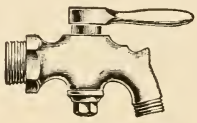
FIG. 19 has Windmill Head, and is intended for hand use or for operation by Windmill or Pump Jack. **PISTON ROD** is polished steel, fastened to the 1x1½-inch flat slide rod, by a strong Set Screw Coupling.

Set-Lengths regularly measure 4 **FEET** from base to bottom of cylinder, but longer set-lengths can be furnished at an extra cost.

These pumps are furnished with our regular 10-inch cylinders, equipped with High-Grade Valve and Plunger Leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

Never use more than 20 feet of pipe below the cylinder.

	Size Cylinder Inches	Size Pipe Inches	PRICE Iron Cylinder	Brass-Lined Cylinder	Br. Body Cylinder
Fig. 18, No. 4	3 x10	1¼	**15.00**	**17.00**	**19.00**
" 18, " 5	3¼x10	1¼	**15.50**	**17.75**	**19.75**
" 18, " 6	3½x10	1¼	**16.00**	**18.25**	**20.25**
" 18, " 8	4 x10	1½	**17.50**	**20.25**	**22.25**
Fig. 19, No. 4	3 x10	1¼	**17.00**	**19.00**	**21.00**
" 19, " 5	3¼x10	1¼	**17.50**	**19.75**	**21.75**
" 19, " 6	3½x10	1¼	**18.00**	**20.25**	**22.25**
" 19, " 8	4 x10	1½	**19.50**	**22.25**	**24.25**
Extra for Cock Spout.....					**2.50**

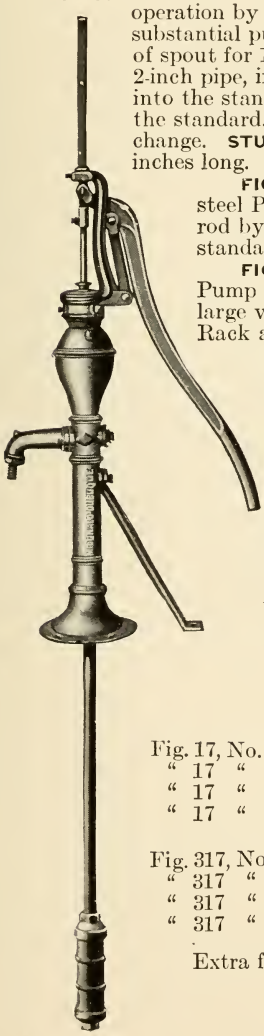


SCREWED COCK SPOUT

SET-LENGTH FORCE PUMPS

FOR HAND AND WINDMILL — ANTI-FREEZING

FIG. 17



These Set-Length Force Pumps are Anti-Freezing, for hand use, or operation by windmill or Pump Jack, on shallow wells. They are strong, substantial pumps, capable of severe service. Standards are tapped in rear of spout for 1-inch pipe, but may be tapped as large as 2-inch pipe, if desired, at the same price. Pipe screws into the standards at the spout. **SPOUTS** are bolted to the standard. Any of the spouts shown below will interchange. **STUFFING NUTS** are Brass. **STROKES** are 6 inches long.

FIG. 17 Set-Length Force Pump has polished steel Piston Rod, connected to the 1x½-inch slide rod by Set Screw Coupling. Cap is fastened to the standard by three set screws.

FIG. 317 Rack and Pinion Set-Length Force Pump is for heavy duty, where pressure is great or large volumes of water are desired. **LEVERAGE** on Rack and Pinion Pumps is better than on other styles. **PISTON ROD** is 1 1/16-inch polished steel welded to 1x½-inch flat rod at top for windmill or pump jack connection.

Set-Lengths regularly measure 4 **FEET** from base to bottom of cylinder, but longer set-lengths can be furnished at an extra cost.

These Pumps are furnished with our regular 10-inch cylinders, equipped with High-Grade Valve and Plunger Leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

Never use more than 20 feet of pipe below the cylinder.

FIG. 317

	Size Cylinder Inches	Size Pipe Inches	Price Iron Cylinder	Price Brass-Lined Cylinder	Price Brass Body Cylinder
Fig. 17, No. 4	3 x10	1¼	13.50	15.50	17.50
" 17 " 5	3¼x10	1¼	14.00	16.25	18.25
" 17 " 6	3½x10	1¼	14.50	16.75	18.75
" 17 " 8	4 x10	1½	16.00	18.75	20.75
Fig. 317, No. 4	3 x10	1¼	15.00	17.00	19.00
" 317 " 5	3¼x10	1¼	15.50	17.75	19.75
" 317 " 6	3½x10	1¼	16.00	18.25	20.25
" 317 " 8	4 x10	1½	17.50	20.25	22.25

Extra for Cock Spout, 2.50.

BOLTED SPOUTS

PLAIN

SIPHON

LEVER HANDLE

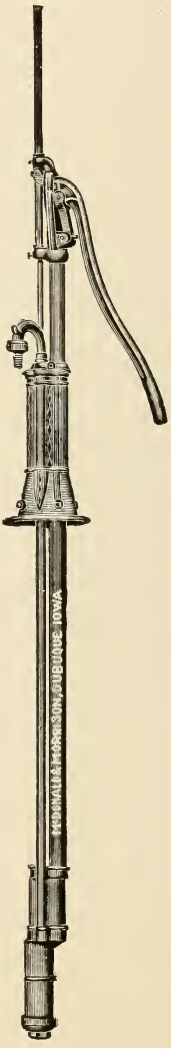
COMPRESSION

DOUBLE-ACTING FORCE PUMPS

SHALLOW WELLS ANTI-FREEZING

FIG. 179

FIG. 184



These Pumps represent Double-Acting Force Pumps for shallow wells 25 to 30 feet deep. They are the same, except as to the top or working head, **FIG. 179** being a hand pump, while **FIG. 184** has windmill head suitable for operation by hand or power.

The main or air chamber pipe is 1½-inch, the discharge is ¾-inch, and the gooseneck coupling is for ¾-inch hose. The caps, handles and fulcrums are heavy and compact, adding greatly to the strength of the pump.

A feature of these pumps is the cast iron shield or jacket, in two pieces, which is held in place by bolts, and can be readily removed when desired. This jacket, resting on the platform, forms the flange, and also holds the discharge pipe rigidly. It not only adds greatly to the strength of the pump, but to the appearance as well.

Upper and lower cylinders are cast in one piece, with a projecting ring at the top of the upper cylinder through which the air chamber pipe passes, and then screws into place where the upper and lower cylinders join.

These Pumps will throw a steady stream because of the large capacity of the air chamber.

The set-length measures 5 feet from base to bottom of cylinder, but longer set-lengths may be furnished at extra cost.

Cylinders are fitted with high-grade plunger and valve leathers.

	Size Cylinders Lower Inches	Size Cylinders Upper Inches	Size Discharge Inches	Length of Stroke Inches	Smallest Size Casing Pump will Enter Inches	Price Iron	Price Brass-Lined
Fig. 179, No. 4	3	2	¾	6	5⅝	13.00	15.00
" 184 " 4	3	2	¾	6	5⅝	14.00	16.00

Add for Three-Way Cock and rod for underground discharge, 2.50.

Bottom caps on cylinders regularly sent tapped for 1¼-inch pipe, but can be furnished for 1½ or 2-inch pipe without additional charge.

DOUBLE-ACTING FORCE PUMPS

DEEP WELL ANTI-FREEZING

FIG. 180

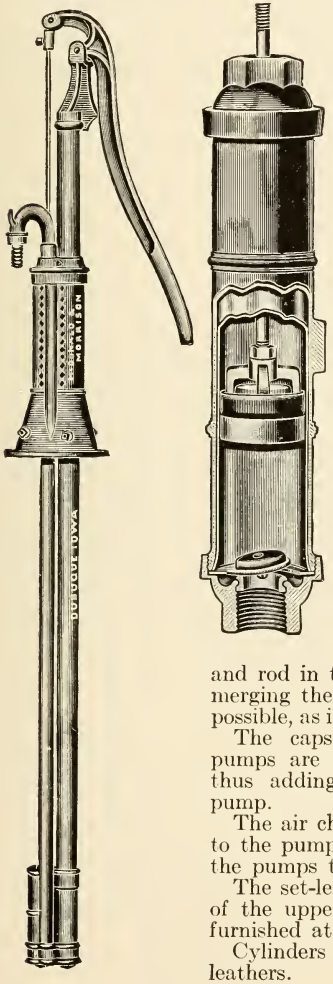
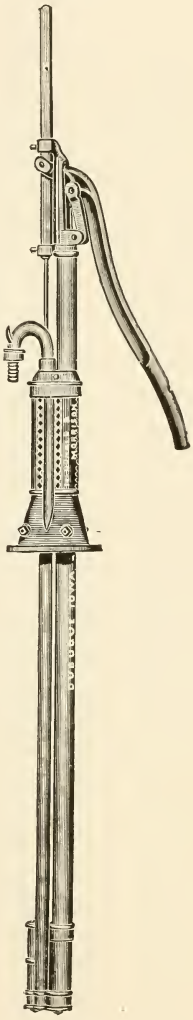


FIG. 185



These cuts illustrate Double-Acting Force Pumps designed for use on deep wells up to 75 feet, **FIG. 180** being a hand pump and **FIG. 185,** with windmill top, for use either with hand or power. In all other respects these two pumps are identical.

An important feature of these pumps is the cast iron shield or jacket, made in two pieces, held in place by bolts firmly clasping the main or air chamber pipe of the pump, and also forming the flange at the platform. This cast iron jacket holds the discharge pipe rigidly in place, it is easily removed as desired, and not only adds greatly to the strength of the pump, but to the appearance likewise.

The main or air chamber pipe is 1½-inch, while the discharge pipe is ¾-inch, and the gooseneck has ¾-inch hose connection.

The lower cylinder is a 3x12 regular cylinder, either iron, brass-lined, or brass body, as listed below. It is suspended below the upper cylinder of pump by means of pipe and rod in the usual manner. We advise submerging the lower cylinder in the water where possible, as it insures the priming of the cylinder.

The caps, handles and fulcrums of these pumps are quite heavy and compactly built, thus adding greatly to the strength of the pump.

The air chamber extending from the cylinder to the pump cap is of such large capacity that the pumps throw a strong, steady stream.

The set-length measures 4 feet to the bottom of the upper cylinder, and longer sets can be furnished at an extra charge.

Cylinders have high-grade plunger and valve leathers.

	Size Cylinders		Size	Length	Smallest Size Casing Pump	Price		
	Lower Inches	Upper Inches	Discharge Inches	of Stroke Inches	will Enter Inches	Iron	Brass-Lined	Brass Body
Fig. 180, No. 4	3x12	2	¾	6	5	**14.00**	**16.00**	**18.00**
" 185 " 4	3x12	2	¾	6	5	**15.00**	**17.00**	**19.00**

Add for Three-Way Cock and rod for underground discharge, 2.50.

Bottom cap of lower cylinder is regularly tapped for 1¼-inch pipe, but can be tapped for 1½ or 2-inch at the same price.

DOUBLE-ACTING FIRE ENGINE PUMP

WITH LEVERS FOR ONE TO EIGHT MEN

FIG. 43

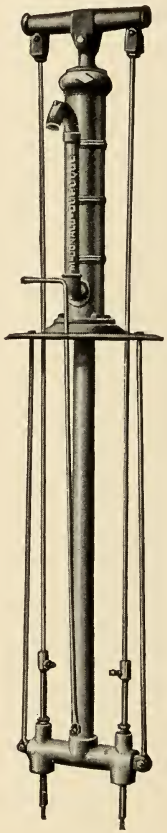


Fig. 43 represents a powerful Double-Acting Force Pump adapted for the protection of factories, stores, dwellings, etc., from fire. It is fitted, as shown in cut, with a 2-inch pipe connecting the bridge piece to the standard, which forms the air chamber.

Pieces of 1¼-inch gas pipe over three feet long (not shown in cut) are inserted into each side of the lever and fastened with set screws, forming a powerful double brake, which may be worked by two to eight men, as required.

From the bridge piece two cylinders are suspended with 1½-inch pipe and inside plunger rod in the usual way.

It may be observed that this pump can be used in deep wells by suspending the cylinders down towards the bottom. We call special attention to this feature, as all other double-brake fire engine pumps have stationary cylinders, and cannot be used in wells over thirty feet deep.

In cases where one suction pipe is used, such as in drive wells, or where it has to be conveyed some distance horizontally, the cylinders may be placed close up to the bridge and connected below with a union to one pipe.

A waste cock is inserted into the 2-inch pipe three feet below the flange to drain the pump in winter.

The air chamber is large, which is a great advantage in throwing a steady stream, and all the bolts and working parts are strong and accurately fitted.

We can unhesitatingly recommend this pump as the best of the kind in use, possessing the three essential qualities, power, strength and simplicity. The gooseneck is made suitable for 1¼-inch hose coupling.

SIZES AND PRICES

WITH IRON CYLINDERS

Price, No. 1, with Two 3½x12-inch Cylinders	40.00
" " 2, " " 4 x12 " "	45.00

WITH BRASS-LINED CYLINDERS

Price, No. 1, with Two 3½x12-inch Cylinders	45.00
" " 2, " " 4 x12 " "	50.00

This pump is listed as shown in cut, and with two cylinders but no lower connecting pipe.

We furnish it, if wanted, all fitted for any depth of well, charging extra for the 1½-inch pipe and inside rod.

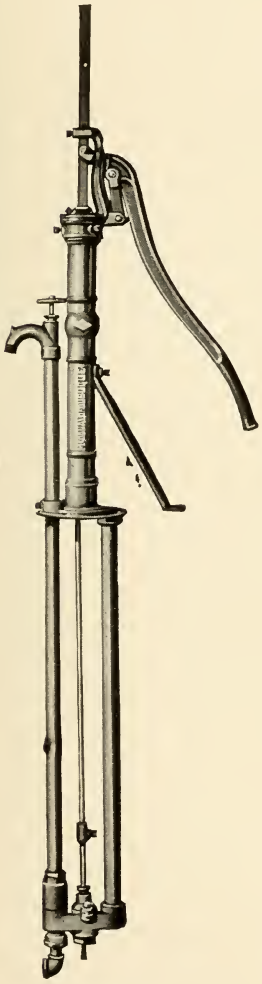
Please state, in ordering, whether 1½-inch pipe shall be black or galvanized.

May be fitted for 2-inch pipe if desired.

UNDERGROUND VALVE FORCE PUMPS

ANTI-FREEZING REVOLVING TOP

FIG. 60



These Pumps are especially adapted for 2 and 2½-inch Tubular Wells, also for 1¼-inch pipe for open and drilled wells. By operating the wheel at the top of the Goose Neck, the water is discharged either through the spout or through the underground discharge. Suitable for operation by hand, windmill or pump jack.

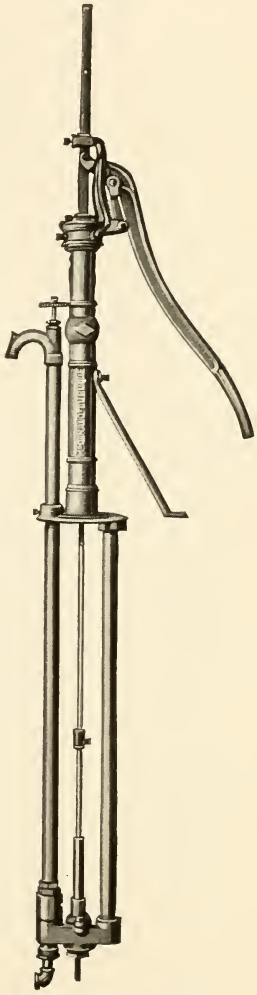
These Pumps are the same, except that **FIG. 60** has the regular piston rod and stuffing nut at the bridge piece, while **FIG. 65** has a 1¼-inch **BRASS PACKING TUBE** with **2-LEATHER PLUNGER.** This Packing Tube is more satisfactory, as the leathers working in a brass tube wear much longer without leaking, than the ordinary stuffing box. **AND IN OUR CONSTRUCTION, THE LEATHERS ON THE PLUNGER IN PACKING TUBE CAN BE REPLACED WITHOUT DISCONNECTING THE PUMP FROM THE WELL PIPE.**

PACKING TUBE or **STUFFING BOXES** can be removed from the bridge piece, leaving an opening large enough to pull the Tubular Valves up through. **SET SCREW COUPLING,** connecting slide rod to piston rod or plunger rod, is strong and convenient, and is better than the union often used.

All parts of these pumps are strong and well made. Air Chamber pipe is 1¼-inch, and discharge pipe is 1¼-inch, with Goose Neck threaded for 1-inch Hose Coupling. **UNDERGROUND DISCHARGE** is regularly for 1-inch pipe but can be for 1¼-inch, when so ordered at the same price.

Length of these pumps is 4 feet 8 inches from base to elbow on underground discharge. Longer Set Lengths furnished when ordered, at an additional cost.

FIG. 65



REGULARLY FITTED: 2-inch well pipe, 1-inch underground discharge and 6-inch stroke. They can be furnished for 2½-inch well pipe at a small additional charge. They can also be furnished with 10-inch stroke or adjustable (6, 8 and 10-inch) stroke, as listed below. Brass Covered Piston Rod can be furnished with Fig. 60 at a small additional charge. Piston Rod and Plunger of Packing Tube are threaded for 7/16-inch rod, and for 3/8-inch pipe to fit regular wood rod coupling.

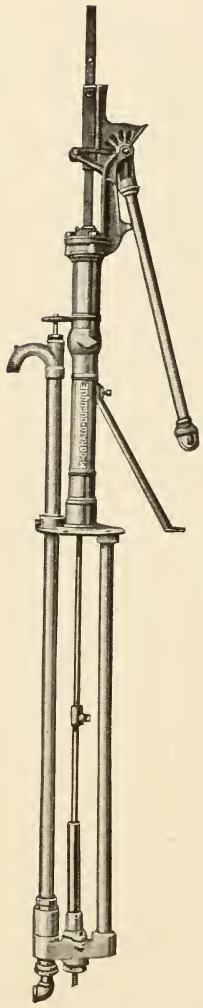
Length of Stroke, inches	6	10	Adjustable
Price, Fig. 60	16.00	17.00	17.50
" " 65	17.00	18.00	18.50

Brass Packing Tube on Fig. 65 Pumps can be 1⅝-inch or 2-inch, when so ordered, at the same price.

RACK AND PINION UNDERGROUND FORCE PUMP

WITH PACKING TUBE **ANTI-FREEZING**

FIG. 365



This pump has rack and pinion head, adapting it to hand operation in very deep wells. The leverage on rack and pinion pumps is better than on any other styles, as it only measures 3 inches from center of handle pin to teeth of gear, while ordinary pumps measure 4½ inches from handle pin to center of slide rod.

Removing pin from gear and slide rod permits the slide rod to work with windmill or pump jack without movement of the handle. The slide rod works in absolutely vertical lines, and the roller opposite the gear segment minimizes friction.

All parts are strong and substantial. Wrought iron handle is long and strong. Gears are thoroughly encased, making injury to the operator impossible. Cap is attached to the standard by three strong hook bolts, and handle can be placed in any desired position.

This pump is especially adapted for 2 and 2½-inch tubular wells, and for 1¼-inch pipe for open or drilled wells. By operating the wheel at the top of gooseneck, the water is discharged either through the spout or through the underground discharge at the bridge piece below. It differs from other makes of 3-way valve pumps in that the operating screw, which is brass, is below near the valve, and not at the gooseneck, consequently there is no liability to chill and freeze.

The 1¼-inch pipe at the right forms the air chamber.

Instead of the regular piston rod and stuffing box, this pump has a 1¼-inch brass packing tube with two-leather plunger. This is far more satisfactory, as the leathers working in a brass tube will wear much longer without leaking than the ordinary stuffing box. **THE COUPLING ON THE ROD BETWEEN BASE OF PUMP AND TOP OF PACKING TUBE ADMITS OF READY REPAIR, AS THE PLUNGER IN PACKING TUBE IS RELEATHERED FROM THE TOP.** Removing the packing tube from bridge piece, the opening is large enough to pull the plunger up through without disconnecting the pipe or disturbing the pump in any way.

This pump can be furnished for 2 or 2½-inch pipe, but will always be sent for 2-inch pipe unless otherwise ordered. A small extra charge is made when furnished for 2½-inch pipe.

Discharge pipe is 1¼-inch. Gooseneck is threaded for 1-inch hose coupling. Underground discharge is regularly a 1-inch malleable elbow, but will be furnished with 1¼-inch malleable elbow, at same price, when so ordered.

Set-length regularly measures 4 feet 8 inches from base to elbow on underground discharge. Longer set-lengths furnished, when so ordered, at an additional cost.

THESE PUMPS ARE REGULARLY SENT WITH 6-INCH HAND STROKE AND 10-INCH POWER STROKE. They can be fitted for power stroke up to 12 inches or longer if so desired, at an extra charge.

	Stroke		
Price, Fig. 365, 6-inch Hand, 10-inch Power		each	**18.50**
" " 365, 6 " " 12 " "		"	**19.50**

Brass packing tube and plunger can be furnished 1⅝ or 2-inch diameter at the same price.

HEAVY UNDERGROUND VALVE FORCE PUMPS

ANTI-FREEZING REVOLVING TOP

FIG. 61

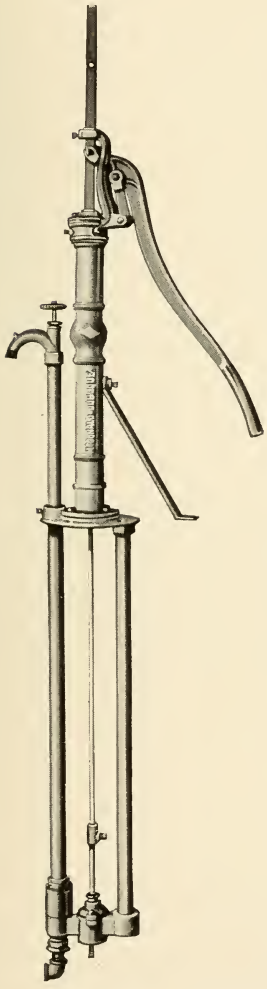
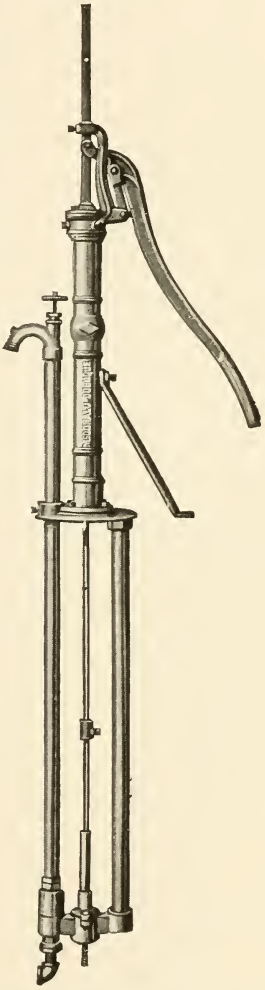


FIG. 66



The Heavy Underground Force Pumps are adapted for 3-inch and smaller tubular wells, also open and drilled wells. By operating the wheel at the top of the Goose Neck, the water is discharged either thru the spout or thru the underground discharge. Suitable for operation by hand, windmill or pump jack.

These pumps are the same, except that **FIG. 61** has the regular piston rod and stuffing nut at the bridge piece, while **FIG. 66** has a 1¼-inch **BRASS PACKING TUBE** with **TWO-LEATHER PLUNGER.** This **PACKING TUBE** is more satisfactory, as the leathers, working in a brass tube, wear much longer, without leaking, than the ordinary stuffing box. **AND IN OUR CONSTRUCTION, THE LEATHERS ON THE PLUNGER IN THE PACKING TUBE CAN BE REPLACED WITHOUT DISCONNECTING THE PUMP FROM THE WELL PIPE.**

PACKING BOXES and **STUFFING BOXES** can be removed from the bridge piece, leaving an opening large enough to pull the Tubular Valves up through. **SET SCREW COUPLING,** connecting slide rod to piston rod or plunger rod, is strong and convenient.

STANDARD is bolted to the Base or Flange, so standard can be removed, if desired, when pulling up valves from tubular wells. Air Chamber Pipe is 1½ inch, and Discharge Pipe is 1¼ inch with Goose Neck threaded for 1-inch hose Coupling. Underground Discharge is regularly for 1-inch pipe, but can be for 1¼-inch, when so ordered.

Length of pumps is 4 feet 8 inches from base to elbow on underground discharge. Larger Set lengths furnished at additional cost.

REGULARLY FITTED; 2-inch well pipe, 1-inch underground discharge, and 6-inch stroke. When wanted for 2½ or 3-inch pipe, a small additional charge is made. They can be furnished with 10-inch stroke, or adjustable (6, 8 and 10-inch) stroke, as listed below. Fig. 61 can be furnished with Brass Covered Piston Rod at a small additional charge. Piston rods and Plungers of Packing Tube are threaded for 7/16-inch rod, and for ⅜-inch pipe to fit ordinary wood rod coupling.

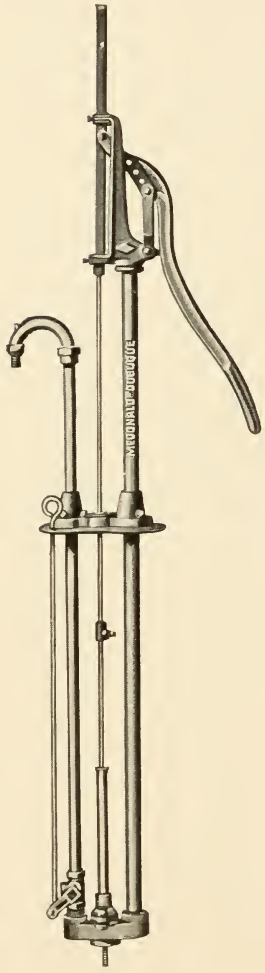
Length of Stroke .....inches	6	10	Adjustable
Price, Fig. 61	18.00	19.00	19.50
" " 66	19.00	20.00	20.50

Brass Packing Tube on Fig. 66 Pump can be 1⅝ or 2-inch, when so ordered at the same price.

UNDERGROUND VALVE FORCE PUMP

WITH BRASS PACKING TUBE

FIG. 70



This pump is as heavy as a skeleton pump of this class can be made, and is next in weight to our Fig. 60 class of pumps, which have long been the standard throughout the country for heavy service pumps.

A feature of this pump is the stroke. When used by hand, a stroke of 12 inches can be made. The regular pump of this type is fitted for a hand and power stroke of 6 to 12 inches.

Another feature of this pump is the adjustable handle, which has four holes in it, giving a large range of power.

The pins are all made for heavy wear. The fulcrum pin being $\frac{5}{8}$x3$\frac{7}{8}$ inches, the handle pin $\frac{5}{8}$x2$\frac{5}{16}$ inches, and the rod pin $\frac{7}{16}$x1$\frac{7}{8}$ inches.

The guide boxes are removable and are chilled to make them hard, thus insuring long wear.

This pump has an **ADJUSTABLE SPLIT GRIP BASE,** extra heavy with two heavy bolts and large gripping surface. It has a covered hole in it, so that plungers as large as 3 inch can be withdrawn.

The slide rod and plunger rod are connected by a pitman, which is screwed on the slide rod and held on the plunger rod by a set screw. This is a strong, convenient feature when placing or repairing a pump.

The plunger rod through the packing cylinder is a solid one-piece rod, and has a two-leather plunger of special construction.

THE BRASS PACKING CYLINDER is 1$\frac{1}{4}$ inch and goes into a long, projecting sleeve in the flange, making the strongest possible connection.

The bridge piece is regularly tapped for 2-inch pipe, but can be fitted for 2$\frac{1}{2}$ or 3-inch pipe, when so specified, at a slight additional cost.

The 1-inch three-way cock is heavy and has the particular feature of being open towards the spout when the rod is pushed down.

The sustaining or air chamber pipe is 1$\frac{1}{2}$ inch, and has the upper end where the cap goes on welded closed, putting it past any possibility of an air or water leak at that point.

The discharge pipe is 1 inch and terminates in a cast iron gooseneck fitted with $\frac{3}{4}$-inch iron hose coupling.

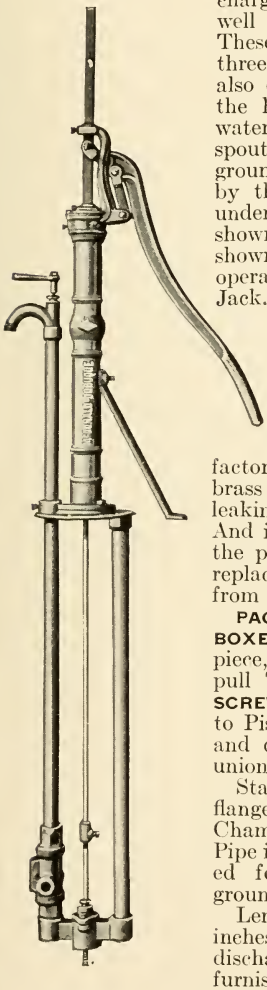
REGULARLY FITTED: 2-inch suction, 1-inch discharge, and with adjustable 6, 8, 10 and 12-inch hand and power stroke.

Price, Fig. 70 ..... **18.50**

TWO-WAY UNDERGROUND FORCE PUMPS

ANTI-FREEZING

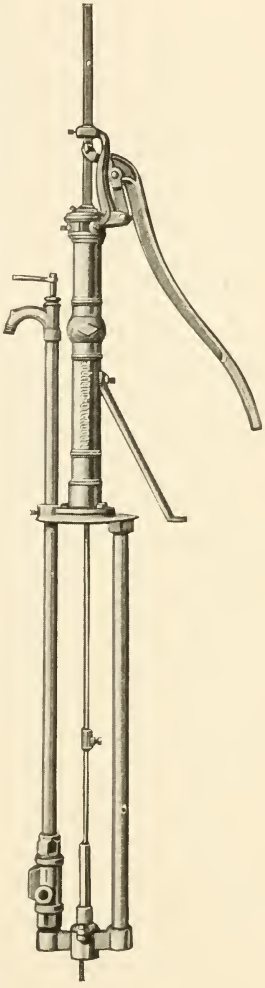
Fig. 62



These pumps are constructed to discharge water two ways underground, as well as through the Gooseneck Spout. These Pumps are heavy, adapted for three-inch, and smaller, tubular wells, also open and drilled wells. By turning the lever at the top of the Gooseneck, water is discharged either through the spout, or through either of the underground discharge openings, as indicated by the direction of lever. The second underground discharge opening is not shown, being directly opposite the one shown in the Valve Box. Suitable for operation by hand, windmill, or Pump Jack.

REVOLVING TOP

Fig. 67



These pumps are the same, except that **FIG. 62** has the regular Piston Rod and Stuffing Box at the bridge piece, while **FIG. 67** has a 1¼-inch **BRASS PACKING TUBE** with **TWO-LEATHER PLUNGER.** This **PACKING TUBE** is more satisfactory, as the leathers, working in a brass tube, wear much longer without leaking than the ordinary Stuffing Box. And in our construction, the leathers on the plunger in the packing tube can be replaced without disconnecting the pump from the well pipe.

PACKING TUBES AND STUFFING BOXES can be removed from the bridge piece, leaving an opening large enough to pull Tubular Valves up through. **SET SCREW COUPLING** connecting slide rod to Piston Rod or Plunger Rod, is strong and convenient, and is better than the union so commonly used.

Standard is bolted to the base or flange, and can be removed easily. Air Chamber pipe is 1½ inch, and Discharge Pipe is 1¼ inch, with Gooseneck threaded for 1-inch hose coupling. Underground Discharges are for 1-inch pipe.

Length of these pumps is 3 feet 7 inches from base to center of underground discharges. Longer Set-Lengths can be furnished, when ordered, at an additional cost.

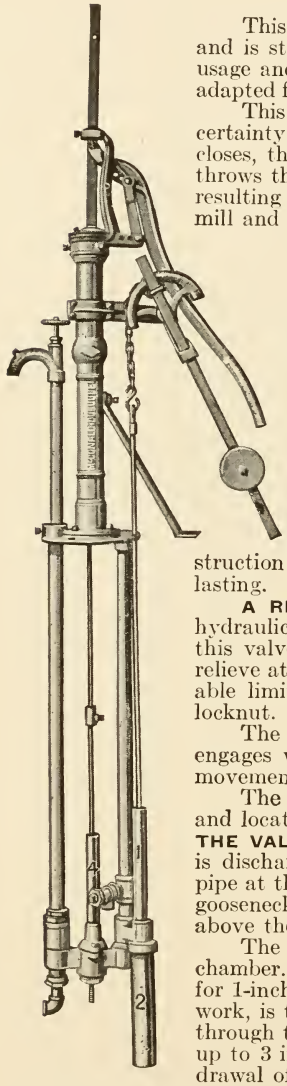
REGULARLY FITTED: 2-inch well pipe, 1-inch underground discharge, and 6-inch stroke. When wanted for 2½ or 3-inch pipe, a small additional charge is made. They can be furnished with 10-inch stroke, or Adjustable (6, 8 and 10-inch) stroke, as listed below. Fig. 62 can be furnished with Brass-Covered Piston Rod at a small additional charge. Piston Rods and Plunger of Packing Tube are threaded for 7/16-inch rod, and for ⅜-inch pipe to fit ordinary wood rod couplings.

Length of Stroke.....inches	6	10	Adjustable
Price, Fig. 62.....each	19.00	20.00	20.50
" " 67..... "	20.00	21.00	21.50

WINDMILL REGULATOR FORCE PUMP

UNDERGROUND VALVE. BRASS HYDRAULIC CYLINDER WITH BRASS PACKING TUBE

FIG. 161



This pump has been especially designed and built for heavy work, and is strongly and well constructed in all parts to withstand rough usage and all such strains as may be put to it. It is also admirably adapted for deep well work.

This Pump automatically controls the windmill with positive certainty and precision. When the valve in the storage or stock tank closes, the pressure in the pipes operates the pneumatic cylinder and throws the mill out of gear, or should a severe windstorm prevail, the resulting pressure would operate likewise, hence one may leave the mill and be assured that no harm can come from the usual causes.

The apparatus for throwing the windmill out of gear consists of a seamless drawn brass tube hydraulic cylinder connected to the segment which operates the regulator arm by a rod and chain, giving it a straight pull, thus preventing its getting out of line or cramping. This hydraulic cylinder is stationary (not moving), and therefore is positively reliable and safe in its control of the mill.

A heavy, seamless drawn brass tube packing cylinder is used on the hydraulic cylinder instead of the usual stuffing box, and particular attention is called to this fact because of the many obvious advantages of this form of construction. The plunger in this tube is our regular double leather plunger with solid rod connection; the bridge piece is also fitted with a seamless drawn brass tube packing cylinder and double leather plunger with solid rod connection, this form of construction being superior to the usual stuffing box and more reliable and lasting.

A RELIEF VALVE is attached between the bridge piece and the hydraulic cylinder to relieve any excessive strain on the mill or pump; this valve is our regular ¾-inch Diamond Relief Valve and is set to relieve at 70 pounds and tested, but it may be adjusted within reasonable limits above or below 70 pounds by means of the controlling locknut.

The arm carrying the segment has a stop or check on it which engages with corresponding stops on the segment, thus limiting the movement of the segment.

The **THREE-WAY VALVE IS EXTRA HEAVY AND SUBSTANTIAL** and located at the bridge piece, **THE OPERATING SCREW BEING IN THE VALVE BOX** and not at the top near the gooseneck; the water is discharged either through the spout or through the underground pipe at the bridge piece by means of the valve wheel at the top of the gooseneck. A vent hole is provided in the delivery pipe at a point just above the valve box, hence the pump is anti-freezing.

The sustaining pipe is 1½-inch inside diameter and acts as an air chamber. The discharge pipe is 1¼-inch and the gooseneck threaded for 1-inch hose coupling. The pump is recommended for tubular well work, is tapped for 2-inch pipe and 2-inch plunger may be withdrawn through the bridge piece, but when desired, we tap the pump any size up to 3 inches inclusive and fit the bridge piece accordingly for withdrawal of plunger of corresponding size. The underground discharge is 1 inch, but may be 1¼ inches if desired.

REGULARLY FITTED 2-inch suction; 1-inch discharge; and with adjustable stroke, 6, 8, and 10-inch.

Price, Fig. 161 ..... **28.00**

LIFT PUMP STANDARDS

REVOLVING CAPS

FIG. 5

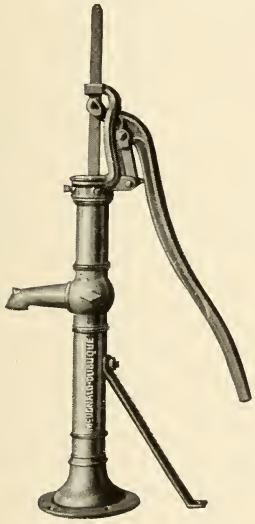


FIG. 6
OPEN TOP

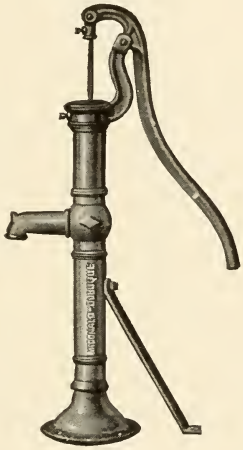


FIG. 6½
TIGHT TOP

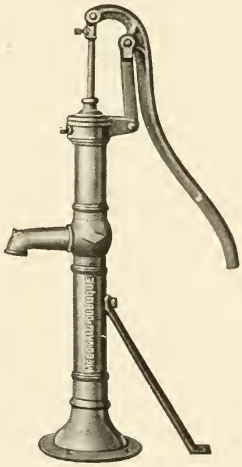


FIG. 5 STANDARD is a light pump with a windmill top, although it is not recommended for other than hand use and not regularly furnished with slide rod sufficiently long for windmill, except when specified on order.

FIG. 6 STANDARD is a light open top pump. It has a rigid fulcrum and open or slotted cap, the rod oscillating as it works. The pitman with set screw makes a strong and convenient connection between handle and plunger rod, and fits either ⅜ or 7/16-inch rod.

FIG. 6½ STANDARD is a light closed top pump. It has the oscillating fulcrum and tight top, the rod moving straight up and down without oscillating motion. The pitman makes a strong, convenient connection between handle and rod. Lower end of rod is threaded for 7/16-inch rod coupling.

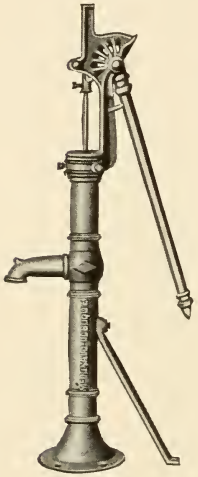
The above standards are all suitable for wells up to 40 feet deep if used with 3-inch or smaller cylinder.

They are tapped at spout for 1¼-inch pipe, but may be tapped for 1½-inch pipe, if desired. 9/16-inch forged pins connect cap, handle and fulcrum, while 7/16-inch pins connect pitman and slide rod.

Price, Fig. 5	Standard, as shown, 6-inch Stroke	.....	6.00
" " 6	" without rod, 6-inch Stroke	.....	4.75
" " 6½	" as shown, 6-inch Stroke	.....	5.25

LIFT PUMP STANDARDS

FIG. 306



REVOLVING CAPS

FIG. 7

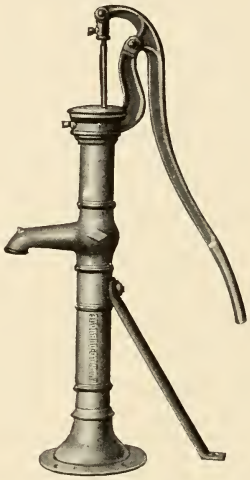


FIG. 8

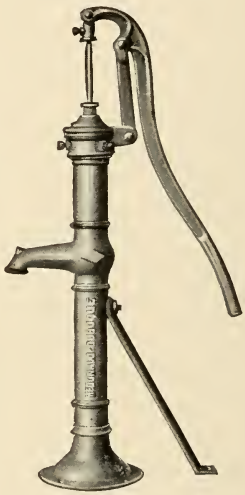


FIG. 306 is a light-weight Rack and Pinion Pump Standard for hand operation only. The tight top, where the plunger rod passes through the cap, prevents anything getting into cylinder and causing trouble. Rack and Pinion construction gives better leverage, and operates more easily than ordinary pumps. Wrought Iron Handle is strong. Gear Segment and Gear Rack are strong, encased by the Cap to prevent possible injury to the operator. Roller, opposite gear segment minimizes friction. Rod works in absolute vertical lines, and is fastened to the gear rack by a ½-inch set screw. Stroke is 6 inches. Suitable for wells up to 40 feet deep, with 3-inch and smaller cylinders. Gear Rack fits ⅜-inch rod.

FIG. 7 is a medium weight Open Top Pump Standard, with rigid fulcrum and open or slotted cap, the rod oscillating as it works. The Pitman with set screw, connecting the handle to the plunger rod is strong and convenient and better than a direct connection between handle and rod. Pitman fits ⅜ or 7/16-inch rod. Stroke is 6 inches. Suitable for wells up to 50 feet deep with 3-inch and smaller cylinders.

FIG. 8 is a medium weight Tight Top Pump Standard. The oscillating fulcrum prevents cramping the rod, which works in a vertical line. The connection between the handle and the plunger rod is a cast iron pitman with set screw, which prevents wear on the 11/16-inch rod which goes through the cap. Stroke is 6 inches. Suitable for wells up to 50 feet deep with 3-inch and smaller cylinders. Lower end of the 11/16-inch rod is threaded for 7/16-inch rod.

All above pumps are tapped for 1¼-inch pipe just below the spout, but may be tapped for 1½-inch pipe if so desired.

Large Forged Steel Pins are used to connect caps and handles, and are better than the small bolts so commonly used.

Price, Fig.	306	Pump Standard				each	**6.00**
" "	7	"	"	without Rod		"	**5.50**
" "	8	"	"			"	**6.00**

LIFT PUMP STANDARDS

OPEN REVOLVING TOPS

FIG. 7½

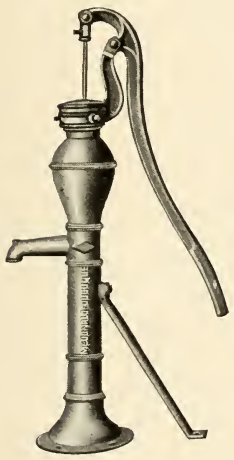


FIG. 27

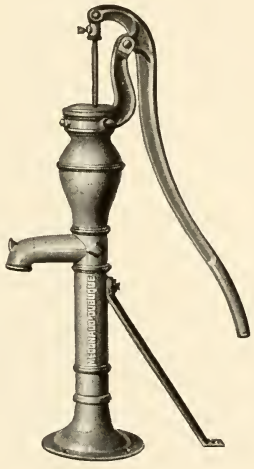


FIG. 97

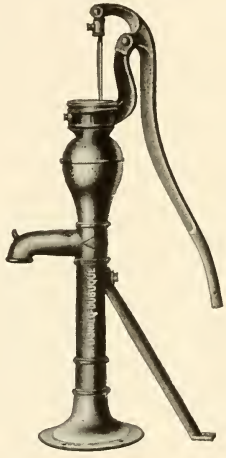


FIG. 7½ is a medium weight Open Top Lift Pump Standard. It has a globe shaped reservoir above the spout, so that large quantities of water can be pumped without any danger of discharging water at the cap. It is suitable for wells up to 60 feet deep with 3-inch cylinder.

The cap has a rigid fulcrum, with open or slotted top, the rod oscillating as it works. The pitman with set screw forming the connecting link between handle and plunger rod makes the strongest and most convenient connection for this purpose.

FIG. 27 is a heavy and large Open Top Lift Pump Standard. All parts are strong and substantial, and the spout is extra large to accommodate large volumes of water. The globe reservoir above the spout prevents water spurting out from the top of cap when pump is being rapidly operated.

The cap and fulcrum are cast integral, the top of the cap being open or slotted so that the rod may oscillate as it works. The pitman with set screw affords the strongest and most convenient method for connecting the handle to the plunger rod.

Suitable for wells up to 60 feet deep with 3½-inch cylinder. If larger than 3½-inch cylinder is used, the depth of well to which the pump is suited would be less than 60 feet.

FIG. 97 is an extra heavy and extra large Open Top Lift Pump Standard. All parts are very heavy and re-enforced at all points of strain. The spout is extra large to accommodate large volumes of water. The globe shaped reservoir above the spout prevents water raising sufficiently high to spurt out of the cap around the rod, when being operated rapidly.

The fulcrum is rigid, and the cap is slotted at the top so that the rod may oscillate as it works. A cast iron pitman with set screw connects the plunger rod to the handle, so that there is no wear on the upper end of the plunger rod.

Suitable for wells up to 60 feet deep with 4-inch cylinder. If larger than 4-inch cylinder is used, the depth of well to which this pump is suited would be lessened accordingly.

All of these pumps are tapped at the spout for 1¼-inch, 1½-inch or 2-inch pipe as desired. Fig. 97 can be tapped for 2½-inch or 3-inch pipe about 4 inches above the flange, at a small additional charge.

Always sent for 1¼-inch pipe unless otherwise ordered.

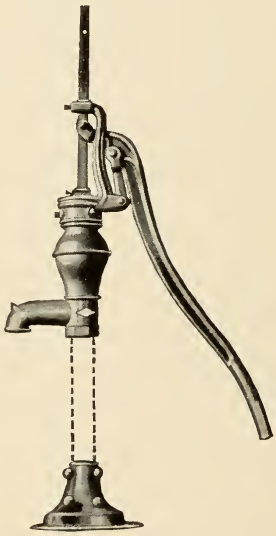
Price, Fig.	7½	Standard,	without	Rod,	6-inch	Stroke	. . . . .	. . . . .	. . . . .	6.00
" "	27	"	"	"	6	"	"	. . . . .	. . . . .	7.00
" "	97	"	"	"	6	"	"	. . . . .	. . . . .	7.50

LIFT PUMP STANDARDS

ADJUSTABLE BASE

FIG. 96

FIG. 95



These Pumps have Adjustable, Split-Grip, Oval Base, having large gripping surface, fastened to the pipe with 4 strong bolts, with ample bearing on the platform. They have Globe Reservoirs above the spout, and Extra Large Spouts, adapting them for use with larger Cylinders.

FIG. 96 is for hand use, and has an Open or Slotted Cap, fastened to the stock by three set screws, so handle can be placed in any position. A cast iron Pitman with set screw forms the connection between handle and plunger rod, removing wear from the plunger rod at that point.

FIG. 95 has Windmill Top, and is shown with 6-inch stroke, but can be furnished with 10-inch stroke, or Adjustable (6, 8 and 10-inch) stroke. The Adjustable Base adapts this pump particularly to tubular wells, as a slight variation in height of pipe above platform is accommodated by adjusting the base to the platform. **CAP** is fastened to the stock by three set screws, and the handle can be placed in any position. **REMOVABLE CHILLED BOXES** in top and bottom of Cap, take the wear of the slide rod, and are easily replaced when worn. Slide Rod is 1 x ½-inch, threaded at the lower end for 7/16-inch rod and ⅜-inch pipe for regular wood rod coupling.

Both of the above pumps are tapped for pipe immediately below the spout. Regularly they are tapped for 2-inch pipe, but may be tapped for 2½ or 3-inch pipe at a small additional charge.

	6-inch Stroke	10-inch Stroke	Adjustable Stroke
Price, Fig. 96.....each	6.50	....	....
" " 95..... "	7.50	8.50	9.00

WINDMILL LIFT PUMP STANDARDS

FIG. 9, NO. 1

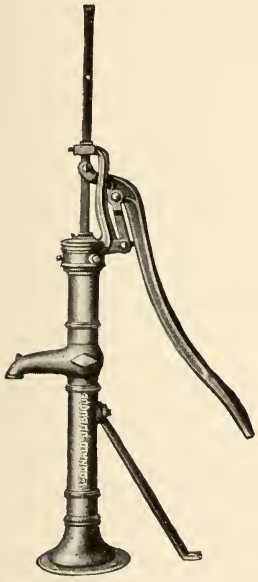


FIG. 9, NO. 1½

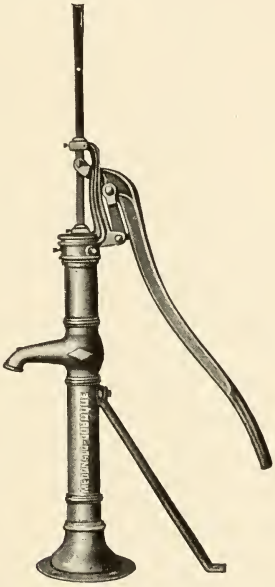
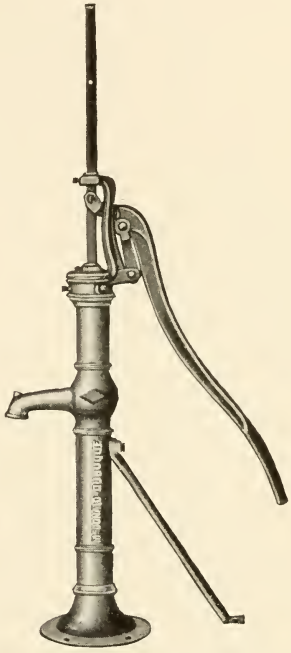


FIG. 9, NO. 2



Above illustrations show our Fig. 9 Lift Pump Standards. They are made in three sizes and weights, No. 1, Light Pattern, No. 1½, Medium Pattern, and No. 2, Heavy Pattern. No. 1 is suitable for wells up to 75 feet deep in connection with 3-inch and smaller Cylinders; No. 1½ is suitable for wells up to 200 feet deep; No. 2 is suitable for wells up to 300 feet deep. All sizes of this pump can be operated by hand, windmill or pump jack.

The pumps are shown with 6-inch stroke, but can be furnished with 10-inch stroke, or with Adjustable (6, 8 and 10-inch) stroke, as listed below. Regularly they are tapped just below the spout for 1¼-inch well pipe, but can be tapped for 1½ or 2-inch pipe. No. 2 size can be tapped for 2½-inch pipe about 4 inches above the base at a slight additional cost. When tapped for 2-inch pipe and with 10-inch stroke or adjustable stroke, they make a very desirable pump for use on tubular wells.

CAPS are fastened to the stock by three set screws, and handles can be placed in any desired position. **REMOVABLE CHILLED BOXES,** in the top and bottom of cap, take the wear of the slide rod off the cap, and are easily replaced when worn. **HANDLES** are strong and heavy, proportioned to the size of the pump. **FULCRUMS** have extra wide base, to provide long bearing on the pin, preventing excessive wear and breakage. **FORGED PINS,** ⅝-inch diameter, connect cap, fulcrum and handle. **SLIDE ROD** is 1 x ½-inch, threaded at the lower end for 7/16-inch rod for pumps tapped 1¼ or 1½-inch, while on pumps tapped for 2 or 2½-inch pipe, the slide rod is threaded for 7/16-inch rod and for ⅜-inch pipe to fit ordinary wood rod coupling.

Regularly fitted for 1¼-inch pipe and with 6-inch stroke. In ordering, be careful to state the size of the pump, length of stroke, and size of tapping.

Length of Stroke.....inches	6	10	Adj.
Price, Fig. 9. No. 1	7.00	8.00	8.50
" " 9, " 1½	7.50	8.50	9.00
" " 9, " 2	8.00	9.00	9.50

WINDMILL LIFT PUMP STANDARD

WITH EXTRA LONG FULCRUM TO BASE

FIG. 9 L. F. No. 1 FIG. 9 L. F. No. 1½ FIG. 9 L. F. No. 2

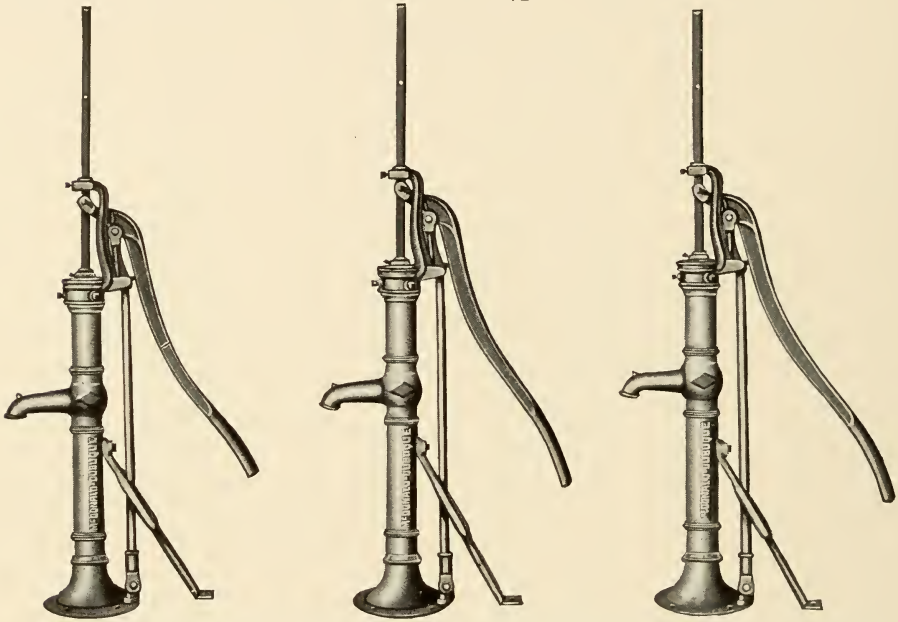


Fig. 9 L. F. is made in three sizes, No. 1 light, No. 1½ medium, and No. 2 heavy. Either size can be furnished with 6-inch stroke as shown, 10-inch stroke or adjustable stroke.

The **LONG FULCRUM** extending from base to handle, has several points of merit. The strain of pumping is all removed from the cap, which only acts as a guide to the slide rod. The length of the fulcrum causes less side pressure on slide rod and works more easily. The long fulcrum, being fastened to the base of the pump, transfers all strain to that point, relieving the standard as well as the cap.

A SLOTTED BRACE through which the fulcrum passes, is furnished with each pump.

CAP is fitted with **REMOVABLE CHILLED BOXES** at top and bottom to take the wear of the slide rod and prevent wear on the cap.

⅝-INCH FORGED STEEL PINS are used in the fulcrum, instead of small bolts. **FULCRUM** is made of ¾-inch pipe screwed into castings at top and bottom.

Fig. 9 L. F., No. 1, is suitable for wells up to 75 feet deep; Fig. 9 L. F., No. 1½, for wells up to 200 feet deep; Fig. 9 L. F., No. 2, for wells up to 300 feet deep.

THE SLIDE ROD IS 1 X ½-INCH FLAT BAR IRON, threaded on the lower end for 7/16-inch rod on pumps tapped 1¼ or 1½, while on pumps that are tapped for 2 or 2½-inch pipe it is threaded for 7/16-inch rod, and also ⅜-inch pipe for regular wood rod coupling.

These pumps are tapped at the spout for 1¼, 1½ or 2-inch pipe, as ordered. No. 2 can also be tapped for 2½-inch pipe at a point about 4 inches above the flange at a slight additional cost. No. 1½ and No. 2, when tapped for 2 or 2½-inch pipe, are particularly suitable for use on tubular wells.

In ordering, always state the size of pump desired, size of tapping and length of stroke. Unless otherwise specified, pumps will be sent for 6-inch stroke and 1¼-inch pipe.

	6-in. Stroke	10-in. Stroke	Adj. Stroke
Price, Fig. 9 L. F. No. 1	8.00	9.00	9.50
" " 9 L. F. " 1½	8.50	9.50	10.00
" " 9 L. F. " 2	9.00	10.00	10.50

EXTRA HEAVY WINDMILL LIFT PUMP STANDARDS

FIG. 11
6-INCH STROKE

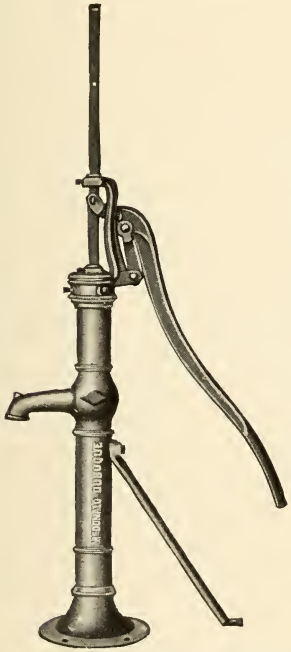


FIG. 11½
ADJUSTABLE STROKE

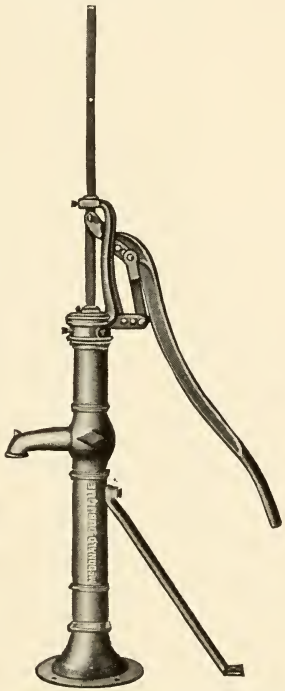
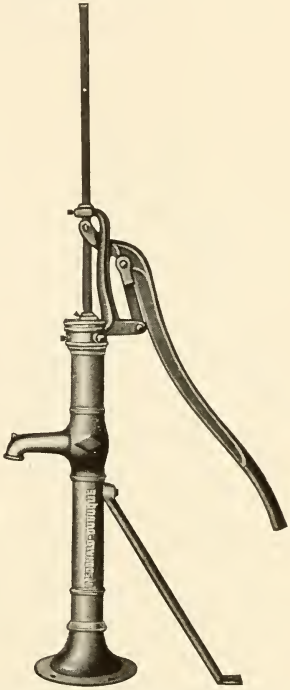


FIG. 14
10-INCH STROKE



The above cuts represent our heaviest Hand and Windmill Lift Pumps, built for heavy duty and for use on deep wells. These pumps have the highest spouts of any that we make. They can be operated by hand, windmill or pump jack.

FIG. 11 has 6-inch stroke only. **FIG. 11½** has adjustable 6, 8 and 10-inch stroke. **FIG. 14** has 10-inch stroke only.

They are particularly adapted for use on tubular wells and for heavy duty generally in wells of any depth. Tapped at the spout for 1¼, 1½ or 2-inch pipe as desired. Can be tapped for 2½ or 3-inch pipe, but when fitted for these large sizes, a small extra charge is made.

CAP is fastened to the stock by three set screws, so that handle may be placed in any position. **REMOVABLE CHILLED BOXES** in top and bottom of cap take the wear of the slide rod and are a valuable feature. **⅝-INCH FORGED PINS** are used in cap, fulcrum and handle.

THE FULCRUM has an extra wide base, giving a much longer bearing than usual, and strengthens these parts accordingly.

HANDLE is long and extra strong. **SLIDE ROD** is made of 1x½-inch flat bar iron, threaded on the lower end for 7/16-inch rod, except on pumps tapped 2, 2½ and 3 inch, when it is threaded for 7/16-inch rod and ⅜-inch pipe for regular wood rod coupling. Unless otherwise ordered, they will be sent tapped for 1¼-inch pipe.

Price, Fig. 11, 6-inch Stroke	each		9.00
" " 11½, Adjustable Stroke	"		10.50
" " 14, 10-inch Stroke	"		10.00

WINDMILL LIFT PUMP STANDARDS

FIG. 12, NO. 0

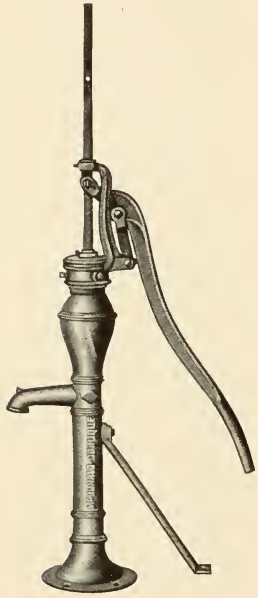


FIG. 12, NO. 1

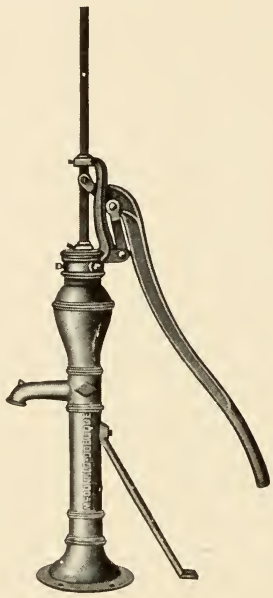
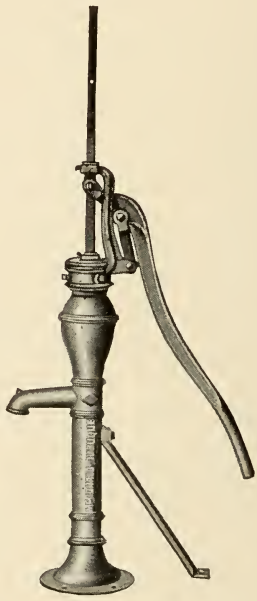


FIG. 13



These cuts show our Hand and Windmill Lift Pumps with globe reservoir above the spout, which style is preferred by many dealers. They can be operated by hand, windmill or pump jack.

No. 0, Fig. 12, is a medium weight pump for use in wells up to 200 feet deep. No. 1, Fig. 12, is a heavy pump, suitable for use in wells up to 300 feet in depth. Fig. 13 is an extra heavy pump for extreme duty, and suitable for wells of any depth.

THE GLOBE RESERVOIR above the spout prevents the water rising in the stock and spurting out at the top.

Three ½-inch set screws fasten the cap to the standard, and the handle can be placed in any position. **REMOVABLE CHILLED BOXES** in top and bottom of cap take the wear of the slide rod.

FORGED PINS, ⅝-inch diameter, are used in cap and fulcrum, **SLIDE ROD** is 1x½-inch flat bar iron, drilled for windmill use, threaded on the lower end for 7/16-inch rod, except on pumps tapped for 2, 2½ or 3-inch pipe, when it is threaded for 7/16-inch rod and ⅜-inch pipe.

The above pumps are shown with 6-inch stroke. They will be furnished with 10-inch stroke or adjustable stroke, when desired, as listed below.

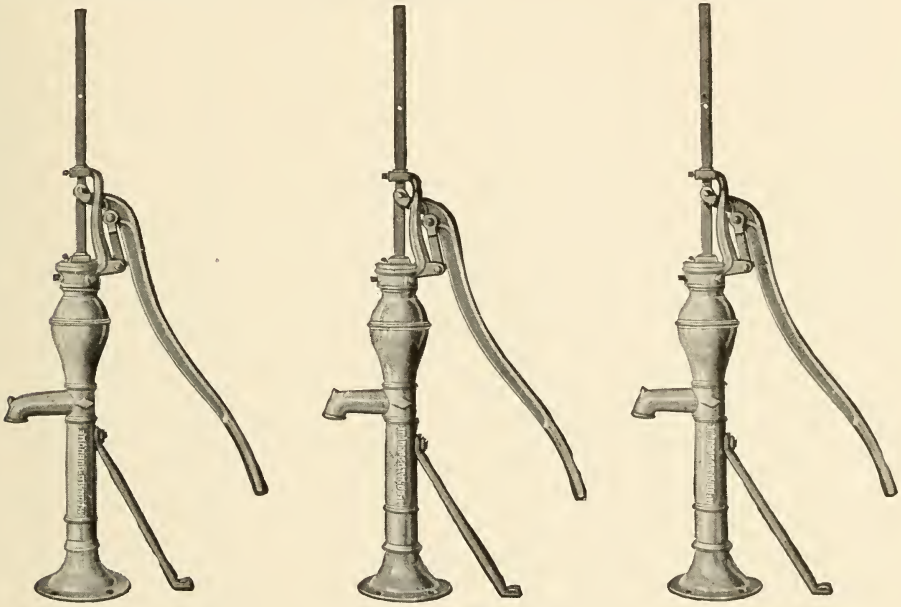
Tapped at the spout for 1¼, 1½ or 2-inch pipe, as ordered, but always sent tapped for 1¼-inch pipe unless otherwise specified. Fig. 13 can be tapped for 2½ or 3-inch pipe about 4 inches above the flange, at a small extra charge. In ordering, state figure and number of pump wanted, also size of tapping and length of stroke.

Length of Stroke .....inches	6	10	Adjustable
Price, Fig. 12, No. 0.....	7.50	8.50	9.00
" " 12, " 1.....	8.00	9.00	9.50
" " 13	8.50	9.50	10.00

WINDMILL LIFT PUMP STANDARDS

WITH EXTRA LARGE SPOUTS

FIG. 12 L. S. No. 0 FIG. 12 L. S. No. 1 FIG. 13 L. S.



Above we show illustrations of our Globe Reservoir Hand and Windmill Lift Pumps with **EXTRA LARGE SPOUTS.** They represent three sizes, No. 0 being medium, No. 1 heavy, and Fig. 13 L. S. extra heavy. They can be operated by hand, windmill or pump jack.

For stock-yard purposes and other places where large cylinders, 4 inches and over in diameter, are used, these pumps are very desirable, as the extra large spout will permit the free discharge of water, while the globe reservoir will prevent water rising too high in the stock above the spout.

They are suitable for deep wells, also, No. 0 being for wells up to 200 feet deep, No. 1 for wells up to 300 feet deep, and Fig. 13 L. S. for wells of any depth and for extreme duty.

CAPS are fastened to the standard by three ½-inch set screws and handle can be placed in any position. **CHILLED BOXES** in top and bottom of cap remove the wear of the slide rod from the cap.

FULCRUM has extra wide base, giving long bearing on pin, and preventing easy breaking. Forged pins, ⅝-inch diameter, are used in cap and fulcrum. **SLIDE ROD** is 1 x ½-inch flat bar iron, threaded on the lower end for ⅞-inch rod, except on pumps tapped 2, 2½ or 3-inch, when it is threaded for ⅞-inch rod and ⅜-inch pipe for regular wood rod coupling.

Tapped at the spout for 1¼-inch, 1½-inch or 2-inch pipe.

Fig. 13 L. S. can be tapped for 2½ or 3-inch pipe at a small extra charge.

In ordering, state figure and number of pump, also size of tapping and length of stroke. Always sent for 1¼-inch pipe and with 6-inch stroke unless otherwise specified.

	6-in. Stroke	10-in. Stroke	Adj. Stroke
Price, Fig. 12, L. S. No. 0	7.50	8.50	9.00
" " 12, L. S. " 1	8.00	9.00	9.50
" " 13, L. S.	8.50	9.50	10.00

Extra for Long Fulcrum to Base, 1.00.

WINDMILL LIFT PUMP STANDARDS

WITH EXTRA LONG FULCRUM TO BASE

FIG. 12 L. F. No. 0

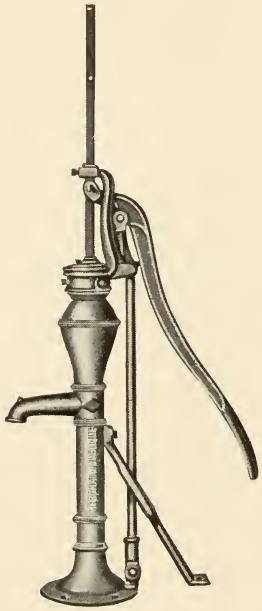


FIG. 12 L. F. No. 1

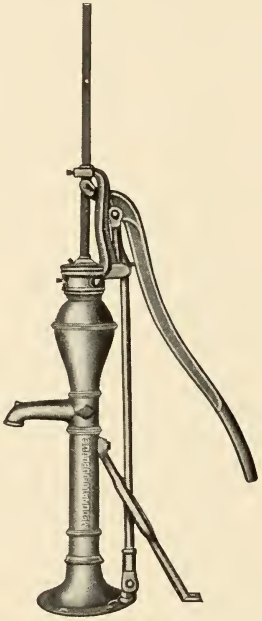
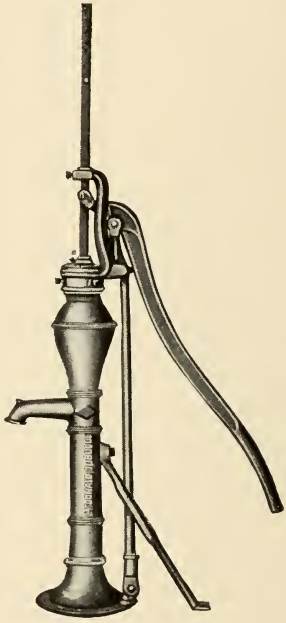


FIG. 13 L. F.



The above illustrations represent three different sizes of our Long Fulcrum Pumps with globe reservoir above the spout. They are furnished with 6-inch stroke, 10-inch stroke, or adjustable stroke.

THE LONG FULCRUM, extending from base to handle, has some points of merit frequently demanded in pumps. The strain of pumping is all taken from the cap, which only acts as a guide to the slide rod. The fulcrum, being so long, causes less side pressure on the slide rod, therefore works easier. As the fulcrum is fastened to the base of the pump, the standard as well as the cap is relieved of all strain. The pipe in the long fulcrum is ¾-inch, of ample strength for every service.

A SLOTTED BRACE, through which the fulcrum works, is furnished with these pumps.

SLIDE ROD is 1 x ½-inch flat bar, threaded at the lower end for 7/16-inch rod, except on pumps tapped 2, 2½ or 3 inches, when it is threaded for 7/16-inch rod and ⅜-inch pipe for regular wood rod coupling.

No. 0 Fig. 12 L. F., is a medium weight pump, suitable for wells up to 200 feet deep; No. 1, Fig. 12 L. F., pump is heavy, and suitable for wells up to 300 feet deep; Fig. 13 L. F., is an extra heavy pump for extreme duty, and suitable for operation in wells of any depth. These pumps are tapped at the spout for 1¼, 1½ or 2-inch pipe. Fig. 13 L. F. can be tapped for 2½ or 3-inch pipe about 4 inches above the flange, at a small additional charge.

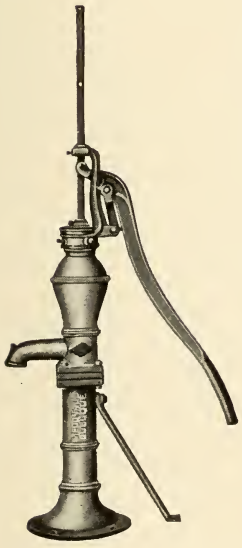
In ordering, always give figure and number of pump, likewise state size of tapping and length of stroke. Unless otherwise ordered they will be sent for 1¼-inch pipe and 6-inch stroke.

	6-in. Stroke	10-in. Stroke	Adj. Stroke
Price, Fig. 12 L. F. No. 0	8.50	9.50	10.00
" " 12 L. F. " 1	9.00	10.00	10.50
" " 13 L. F	9.50	10.50	11.00

EXTRA HEAVY BOLTED LIFT PUMP STANDARD

FOR HAND, WINDMILL OR PUMP JACK

FIG. 212



This cut illustrates our Fig. 212 Standard, which is bolted just below the spout. As it can be operated by either hand, windmill or pump jack, it is suitable for wells of any depth, especially for tubular wells (being tapped for 3, 2½ or 2-inch pipe) or in connection with cylinders of large diameter. All parts of the pump are **EXTRA LARGE AND EXTRA HEAVY.**

STANDARD consists of three parts: the Base Section, the Pipe Flange and the Spout Section. **BASE SECTION** has a very wide, strong flange, being intended for extremely heavy duty, and inside diameter permits 3-inch pipe to pass through to the pipe flange above. **PIPE FLANGE** is tapped for 3, 2½ or 2-inch pipe, as ordered, and firmly fastened between base and spout section by four large bolts. **SPOUT SECTION** with Extra Large Spout and large Reservoir above the spout, prevents water rising too high in the stock, thus adapting it to cylinders of large capacity.

This Pump is very popular for tubular wells and where large cylinders are suspended from the pump, as it permits the removal of the Spout Section, when rod or cylinder is being repaired, without disturbing the Base Section.

CAP is fastened to the spout section by three ½-inch set screws, which permit the handle to be placed in any position. **REMOVABLE CHILLED BOXES** in top and bottom of cap take the wear of the slide rod, and can easily be replaced when worn. **HANDLE** is the longest and strongest we make. **FULCRUM** has an extra wide base, providing long bearing on the pin and preventing excessive wear and breakage.

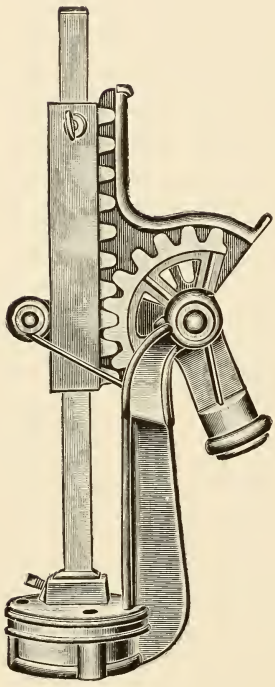
SLIDE ROD is 1x½-inch flat bar, threaded at the lower end for 7/16-inch rod coupling, and for ⅜-inch pipe to fit regular wood rod coupling. It can be threaded for ⅝ or ⅞-inch box pin coupling without extra charge. **FORGED PINS** ⅝-inch diameter, connect cap, handle and fulcrum, and are much superior to the small bolts commonly in use. **STROKE** as shown is 6-inch, but the pump can be furnished with 6-inch stroke, 10-inch stroke, or Adjustable 6, 8 and 10-inch stroke, as ordered.

REGULARLY FITTED: 3-inch Well Pipe and 6-inch Stroke. If wanted with different Tapping or Stroke, specify definitely on order. Approximate weight 100 lbs.

Stroke.....inches	6	10	Adj.
Price, Fig. 212.....each	**10.50**	**11.50**	**12.00**

RACK AND PINION LIFT AND FORCE PUMPS

FOR HAND AND WINDMILL USE



The construction of all our Rack and Pinion pumps gives them unusual strength, power and wearing qualities as all points of strain are reinforced, the parts heavy and substantial, yet symmetrical and neat in appearance.

The Rack and Pinion also gives to these pumps a most powerful leverage, hence they work easily and are therefore recommended for deep wells or other heavy work where it is desirable or essential to lighten the load. In the average pump the short arm of the lever (i. e. from the fulcrum pin to the slide rod pin) measures 4½ inches long, while in the construction of the Rack and Pinion pumps the short arm of the lever measures only 3 inches, and this gives to the Rack and Pinion style of pump an additional power of approximately 50 per cent.

The illustrations practically speak for themselves, yet it may not be amiss to call special attention to the several main points of merit, i. e. the short leverage, the absence of side friction and oscillation, and the direct up-and-down motion of the Gear Rack against the roller, all combining to make these the easiest working type of hand and windmill pump.

Even though a pump is primarily intended for operation by means of windmill or pump jack, it is nevertheless often necessary to pump some water by hand; at such times an easy working pump is wanted and **THE RACK AND PINION PUMP OF OUR MAKE IS THE EASY WORKING PUMP.**

The Cap is fastened to the stock by three large hook bolts, which is the strongest possible fastening. The cap is so constructed that it carries the Gear Segment and Handle, and a roller against which the Gear Rack works. The Cap is also an ornamental shield protecting the Gear Segment and the Gear Rack, and likewise protects the user from any chance of injury while operating the pump.

The Gear Rack is hollow, so that when the rod pin is taken out the slide rod can play through it and all parts of the pump except the slide rod will remain stationary. The rod pin connects the gear rack and slide rod when pump is operated by hand.

The Gear Segment is strong and has large heavy teeth. The Handle is 1-inch pipe and screwed into the segment at a slight angle which gives best leverage. The pipe handle can be lengthened if necessary for very heavy service and is fitted with an ornamental weight at lower end.

The Slide Rod is 1-inch by ½-inch flat, and is regularly made for 6-inch hand stroke and 10-inch power stroke, and is threaded on the lower end for 7/16-inch rod, except on pumps tapped 2, 2½ or 3-inch, when it is threaded for 7/16-inch rod and ⅜-inch pipe for regular wood rod coupling.

ONE PARTICULAR FEATURE OF THIS STYLE OF CONSTRUCTION IS THAT WHILE THE HAND STROKE IS ALWAYS 6 INCHES LONG, THE POWER STROKE MAY BE ANY ADDITIONAL LENGTH UP TO 24 INCHES OR LONGER IF SO ORDERED, AT AN ADDITIONAL COST.

This chilled guide box at the base of the cap is very hard and strong, prevents wear on the cap, and is easily replaced when worn out in service.

All pins used in the construction of these pumps are heavy forged pins.

Rack and Pinion Pumps are shown on following pages.

RACK AND PINION LIFT PUMPS

FOR HAND AND WINDMILL USE

FIG. 309, No. 1

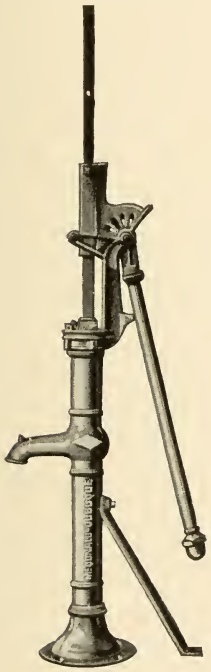


FIG. 309, No. 1½

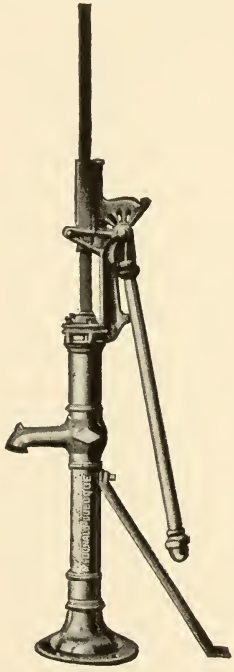
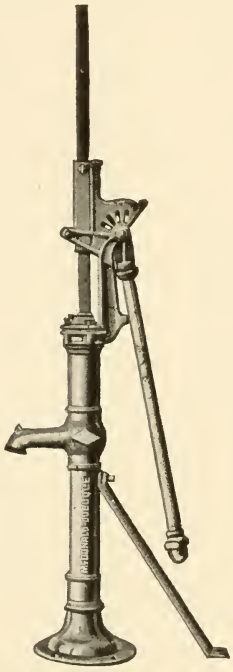


FIG. 309, No. 2



See preceding page for general description of Rack and Pinion Pumps. The above cuts represent our Fig. 309, which is made in three sizes as shown, No. 1, No. 1½ and No. 2, each size being larger and heavier than the one preceding. All parts will interchange, which feature pump men will readily appreciate. No. 1 can only be tapped for 1¼-inch pipe. No. 1½ and No. 2 may be tapped as large as 2-inch pipe and furnished with forked rod when so desired for tubular wells. All are provided with guide boxes, which can readily be replaced at small cost.

No. 1 is suitable for wells up to 75 feet deep in connection with 3-inch and smaller cylinders; **No. 1½** is suitable for wells up to 200 feet deep; **No. 2** is suitable for wells up to 300 feet deep.

THESE PUMPS ARE REGULARLY SENT WITH 6-INCH HAND STROKE AND FOR 10-INCH POWER STROKE. THEY CAN BE FITTED FOR POWER STROKE UP TO 24 INCHES OR LONGER, IF SO DESIRED, AT AN EXTRA CHARGE.

Strokes.....size	No. 1	No. 1½	No. 2
Price, 6-inch Hand 10-inch Power.....each	8.50	9.00	9.50
" 6 " " 12 " " ..... "	....	9.50	10.00

These pumps are always sent fitted for 1¼-inch pipe unless otherwise ordered.

RACK AND PINION LIFT PUMPS

FOR HAND AND WINDMILL USE

FIG. 312, No. 0

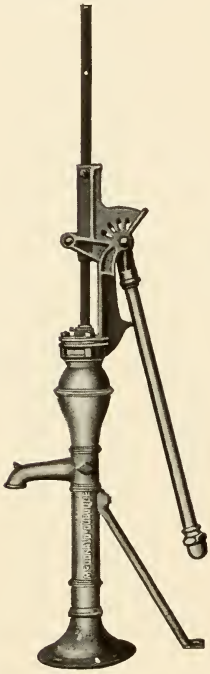


FIG. 312, No. 1

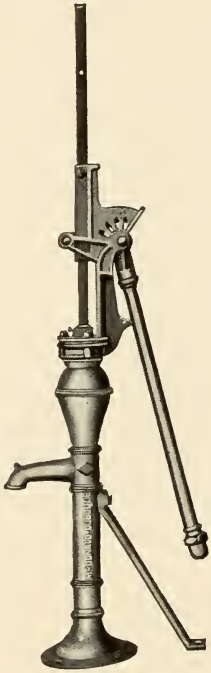
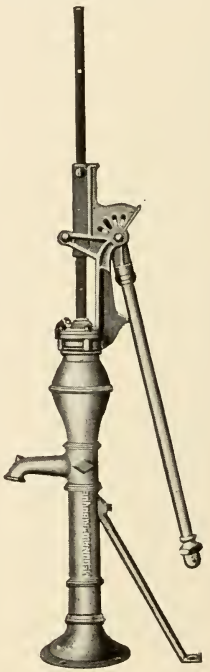


FIG. 312, No. 2



See second page preceding for general description of Rack and Pinion Pumps. The above illustrations represent our Fig. 312, which is made in three sizes as shown No. 0, No. 1, and No. 2, each size being larger and heavier than the one preceding. All parts will interchange, a feature which pump men will appreciate. These pumps are adapted to the same suse as Fig. 309, and are in all respects the same as Fig. 309, except that they have the Globe reservoir above the spout, which prevents the water rising in the stock above spout.

The Standards are similar to our Figs. 12 and 13. All are provided with guide boxes, which can readily be replaced at small cost.

No. 0 and No. 1 can be tapped as large as 2-inch pipe when so desired. No. 2 can be tapped as large as 2½-inch or 3-inch pipe, but when tapped for 2½-inch or 3-inch, tapping is 4 inches above the base. **No. 0** is suitable for wells up to 200 feet deep; **No. 1** is suitable for wells up to 300 feet deep; **No. 2** is an extra heavy pump for extreme duty, and suitable for wells of any depth.

THESE PUMPS ARE REGULARLY SENT WITH 6-INCH HAND STROKE AND FOR 10-INCH POWER STROKE. THEY CAN BE FITTED FOR POWER STROKE UP TO 24 INCHES OR LONGER IF SO DESIRED, AT AN EXTRA CHARGE.

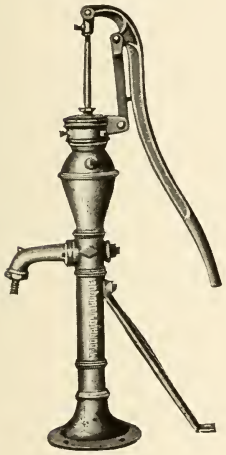
Strokes	Size	No. 0	No. 1	No. 2
Price, 6-inch Hand 10-inch Power	each	9.00	9.50	10.00
" 6 " " 12 " "	"	9.50	10.00	10.50

These pumps are always sent fitted for 1¼-inch pipe unless otherwise ordered.

HAND FORCE PUMP STANDARDS

WITH BOLTED SPOUT

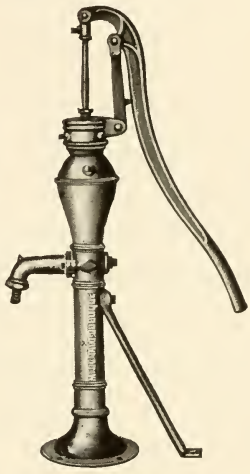
FIG. 15, NO. 0



LEVER HANDLE COCK SPOUT

COMPRESSION COCK SPOUT

FIG. 15, NO. 1



These illustrations show two sizes of our Hand Force Pumps designed for use on shallow or medium depth wells, and they are made in two sizes, No. 1 being considerably larger and heavier than No. 0.

The **SPOUTS** are bolted to the standard and fitted with a union connection for ¾-inch or 1-inch hose, as ordered. **COCK SPOUTS** will interchange, but pumps are always sent with plain spouts unless otherwise ordered.

The enlargement above the spout forms the air chamber, a tube extending downward from the stuffing box prevents the escape of air around the piston rod. A brass thumb screw is attached to the air chamber, and should be screwed down tightly when forcing, but loosened when used as a lift pump.

Tapped in rear of spout for 1-inch pipe, so that water may be conducted to any desired point. They can be tapped in rear of spout for 1¼-inch pipe when so ordered.

PISTON ROD is polished steel, but brass covered piston rod can be furnished at a slight additional cost. Threaded at the lower end for 7/16-inch rod.

STUFFING BOX is brass. **⅝-INCH WROUGHT PINS** connect cap, handle and fulcrum.

THE OSCILLATING FULCRUM relieves side pressure and avoids cramping of the piston rod, also wear at the stuffing box.

Pipe screws into the standard at the spout. Regularly sent tapped for 1¼-inch pipe, but will be tapped for 1½ or 2-inch pipe when so ordered, and at the same price.

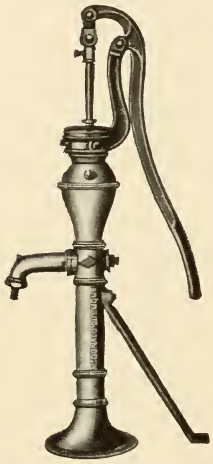
In ordering, always state which size pump is wanted, whether with plain or cock spout, and size of tapping.

	Bolted Plain Spout	Bolted Cock Spout
Price, Fig. 15, No. 0	**8.50**	**11.00**
" " 15, " 1	**9.00**	**11.50**

HAND FORCE PUMP STANDARDS

WITH BOLTED SPOUT

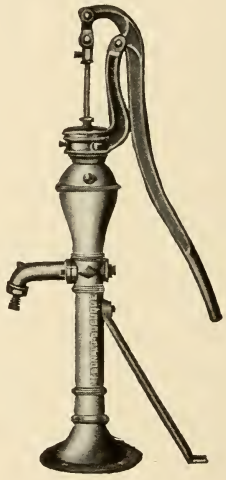
FIG. 15½, NO. 0



LEVER HANDLE COCK SPOUT

COMPRESSION COCK SPOUT

FIG. 15½, NO. 1



Our Fig. 15½ Hand Force Pump Standards are made in two sizes as illustrated above, No. 1 being much larger and heavier than No. 0, while both are suitable for use on cisterns or on shallow and medium depth wells.

They are tapped in the rear of spout for 1-inch pipe, so that a pipe can be attached at this point to conduct water to a desired point. They can be tapped, if desired, for 1¼-inch pipe, but must be so ordered.

THE PISTON ROD is polished steel, but brass-covered piston rod can be furnished at a slight additional cost. **THE STUFFING NUT** is cast brass.

The enlargement above the spout forms the air chamber, while a tube within the air chamber, and extending down from the stuffing box, prevents the escape of air around the piston rod. To the air chamber is attached a brass thumb screw, which should be screwed down tightly when forcing water and loosened when the pump is used merely as a lift.

CAP has a rigid arm or fulcrum in which the handle works. A loose link between handle and set screw coupling prevents cramping of the piston rod, friction and wear at the stuffing box, and keeps the piston rod in alignment. In many sections this style is preferred to the one with oscillating fulcrum.

THE SPOUTS are bolted to the standards, as shown, and will interchange. **PLAIN SPOUTS** will always be sent unless otherwise ordered. Union connection for ¾-inch hose furnished with each pump, and 1-inch connection can be furnished at the same price, if desired.

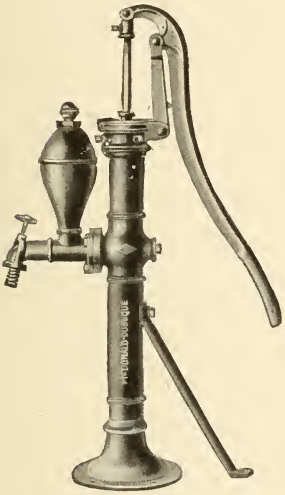
Pipe screws into the standard at the spout. Regularly tapped for 1¼-inch pipe, but will be tapped for 1½ or 2-inch pipe when so ordered, at the same price.

Always state which pump is wanted, what style spout, and what size tapping.

	Bolted Plain Spout	Bolted Cock Spout
Price, Fig. 15½, No. 0	8.50	11.00
" " 15½ " 1	9.00	11.50

HEAVY FORCE PUMP STANDARDS

FIG. 18



SHOWING COCK SPOUT

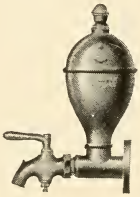
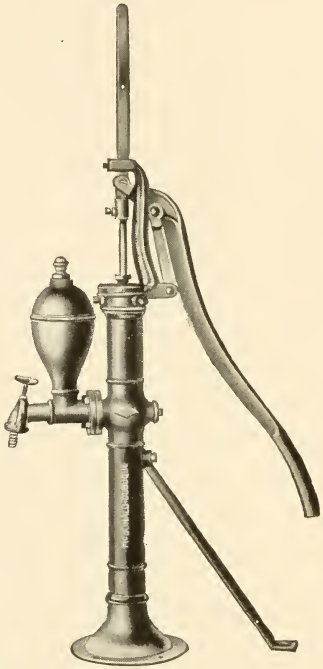


FIG. 19



These are Extra Heavy Force Pump Standards with Air Chambers bolted to the standards. Air Chambers are large and insure a steady stream at nozzle when hose is used. Hose Clevises for ¾ or 1-inch hose are furnished with plain spout pumps. Cock Spouts, screwed into air chamber, in place of the spout can be furnished at an extra cost. Cock Spouts are threaded for 1-inch hose coupling. Standards are tapped in rear of spout for 1-inch pipe, but may be tapped as large as 1½-inch without extra charge. Tapped just below the spout for 1¼, 1½ or 2-inch pipe, but always sent for 1¼-inch well pipe unless otherwise ordered. **PISTON RODS** are polished steel, threaded at the lower end for 7/16-inch rod and ⅜-inch pipe for regular wood rod coupling. Brass-Covered Piston Rods can be furnished at an extra cost. **LARGE FORGED PINS** connect cap, handle and fulcrum, and are better than small bolts so commonly used. **CAPS** are fastened to the standard by three set screws, so handle can be placed in any position. All parts of these pumps are strong and heavy, suitable for wells of any depth.

FIG. 18, for hand use only, has Oscillating Fulcrum which relieves side pressure, and avoids cramping of piston rod and wear at the stuffing box. Stroke is 6 inches.

FIG. 19, is made in two sizes, No. 1 and No. 2 and is intended for operation by hand, windmill and pump jack. Piston Rod is fastened to the 1x½-inch flat slide rod by the strong and convenient Set Screw Coupling. Cap has Removable Chilled Box to take the wear of the slide rod, easily replaced when worn. Made with 6-inch, 10-inch or Adjustable (6, 8 and 10-inch) stroke.

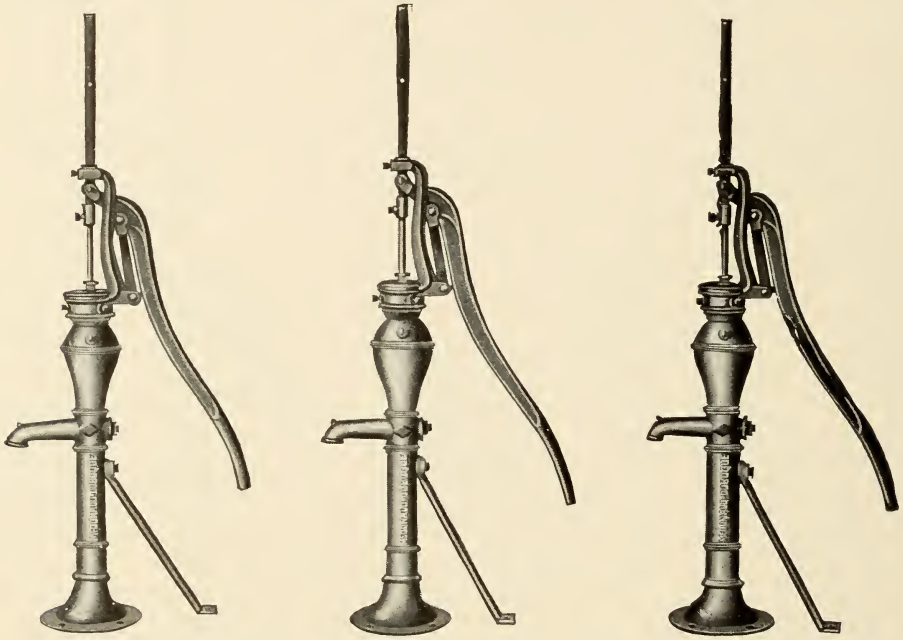
ALL THESE PUMPS ARE REGULARLY FITTED, 1¼-inch well pipe, 6-inch stroke, 1-inch back outlet; plain spout. If wanted with different tapping, stroke or spout, specify definitely on order.

Length of Stroke.....inches	6	10	Adjustable
Price, Fig. 18	11.00	.....	.....
" " 19, No. 1	13.00	14.00	14.50
" " 19 " 2	13.50	14.50	15.00

Add for Cock Spout, 2.50.

WINDMILL FORCE PUMP STANDARDS
FOR HAND, WINDMILL OR PUMP JACK

FIG. 16 No. 0 FIG. 16 No. 1 FIG. 16 No. 2



These illustrations show our Fig. 16 Pump. **No. 0** being Standard, **No. 1** being Heavy, and **No. 2** being Extra Heavy. They are shown with 6-inch stroke, but they can all be furnished with 10-inch Stroke, or with Adjustable (6, 8 and 10-inch) Stroke. They are shown with Plain Spout cast solid with the standard, but when **COCK SPOUT** is desired, the standard is tapped for 1¼-inch pipe and a **LEVER HANDLE COCK SPOUT** is screwed in. These pumps are suitable for wells of almost any depth, though we recommend No. 1 or No. 2, when wells are over 200 feet deep.

The pump is tapped in rear of spout for 1, 1¼, 1½, or 2-inch pipe.

Tapped at spout for 1¼, 1½ or 2-inch well pipe.

CAP is attached to standard by three ½-inch set screws.

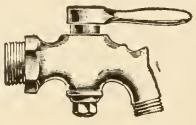
PISTON ROD is polished steel, connected to flat slide rod by means of a strong set screw coupling. Brass-covered piston rod can be furnished. Piston rod is threaded for 7/16-inch rod, and ⅜-inch pipe.

STUFFING BOX NUT is brass. **IRON STUFFING BOX** screws into the top of standard, and permits tubular valves to pass through.

A Malleable Hose Clevis is sent with plain spout pumps.

In ordering, always state size of pump, length of stroke, and style of spout. Unless otherwise specified, the pump will be sent for 1¼-inch pipe, 6-inch stroke and plain spout.

Length of Stroke.....inches	6	10	Adjustable
Fig. 16, No. 0.....	9.50	10.50	11.00
" 16 " 1.....	10.00	11.00	11.50
" 16 " 2.....	11.00	12.00	12.50



SCREWED COCK SPOUT

Extra for Cock Spout.....	2.50
" " Long Fulcrum to Base.....	1.00

WINDMILL FORCE PUMP STANDARDS
FOR HAND, WINDMILL OR PUMP JACK

FIG. 16½, No. 0

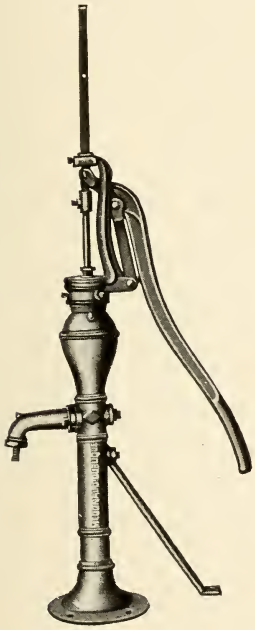


FIG. 16½, No. 1

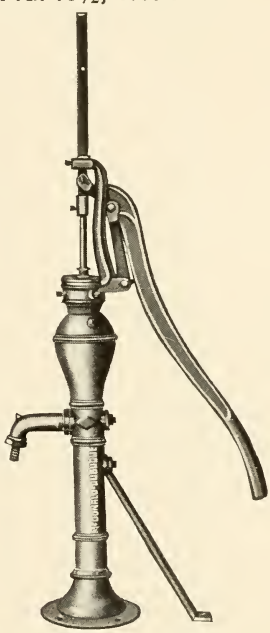
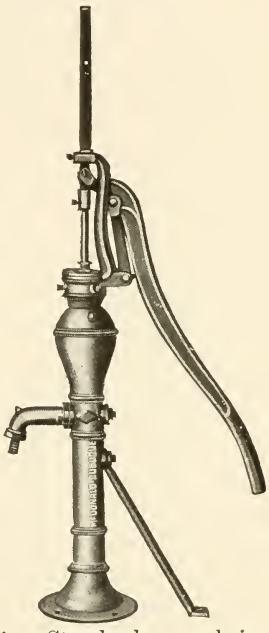


FIG. 16½, No. 2



These illustrations show our Fig. 16½ Pump. **No. 0** being Standard, **No. 1** being Heavy and **No. 2** being Extra Heavy. They are shown in 6-inch stroke but they can all be furnished with 10-inch Stroke or with Adjustable (6, 8 and 10-inch) Stroke. Shown with Bolted Plain Spout, but the spouts shown below will interchange. These pumps are suitable for wells of almost any depth. We recommend No. 1 or No. 2, when wells are over 200 feet deep.

THE AIR CHAMBER has a tube extending down from the stuffing box to prevent the escape of air. **TAPPED** in rear of spout for 1, 1¼, 1½ or 2-inch pipe. **TAPPED** just below the spout for 1¼, 1½ or 2-inch well pipe. No. 2 may be tapped for 2½ or 3-inch pipe.

CAP is fastened to the standard by three ½-inch set screws. **PISTON ROD** is polished steel, connected to 1x½-inch slide rod by a strong set screw coupling. Piston Rods are threaded at the lower end for 7/16 rod and for ⅜-inch pipe. **BRASS-COVERED PISTON RODS** can be furnished. **STUFFING NUTS** are cast brass. **IRON STUFFING BOXES** screw into the top of standard, and permit the passage of Tubular Valves.

REGULARLY FITTED: 1¼-inch Well Pipe, 6-inch Stroke, 1-inch Back outlet and Plain Spout. If wanted with different Tapping, Stroke or Spout, specify definitely on order.

Length of Stroke.....inches	6	10	Adj.
Price, Fig. 16½ No. 0.....	9.50	10.50	11.00
" " 16½ " 1.....	10.00	11.00	11.50
" " 16½ " 2.....	11.00	12.00	12.50

Extra for Cock Spout, 2.50.

BOLTED SPOUTS

PLAIN

SIPHON

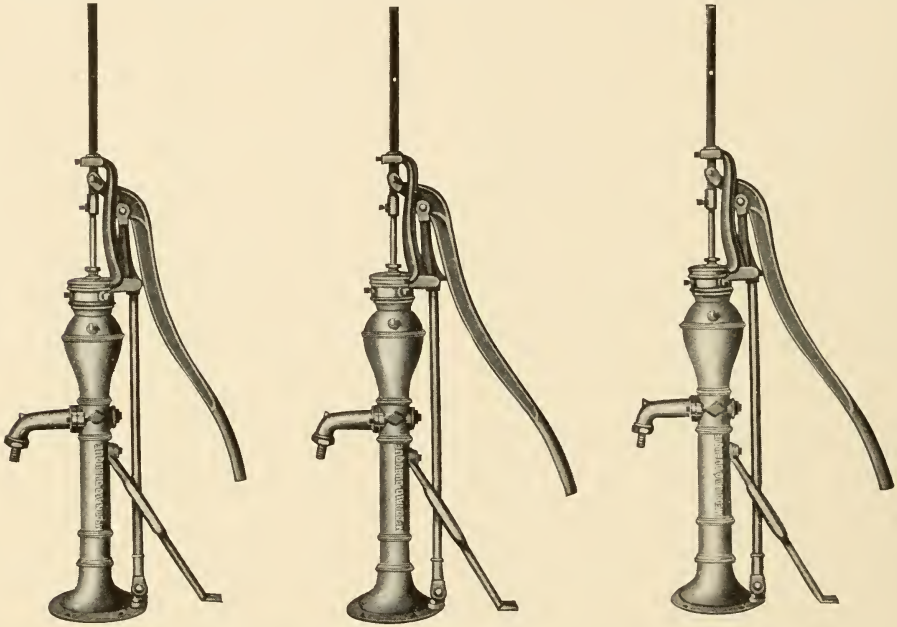
LEVER HANDLE

COMPRESSION

HAND AND WINDMILL FORCE PUMP STANDARDS

WITH EXTRA LONG FULCRUM TO BASE

FIG. 16½ L. F. No. 0 FIG. 16½ L. F. No. 1 FIG. 16½ L. F. No. 2



Above we show our three sizes of Fig. 16½ L. F. Force Pump Standards with Extra Long Fulcrums to base. **No. 0** is Standard, **No. 1** is Heavy, and **No. 2** is Extra Heavy. **THE LONG FULCRUM** removes the strain of pumping from the cap and works more easily.

STANDARD is tapped in rear of spout for 1¼, 1½ or 2-inch pipe. **TAPPED** for 1¼, 1½ or 2-inch well pipe just below the spout. No. 2 can be tapped for 2½ or 3-inch pipe about 4 inches above the base at an additional cost. **IRON STUFFING BOXES,** screwed into the top of standard, are large enough to permit the passage of 2-inch tubular valves. **SPOUTS** are bolted to the standards, and spouts shown below will interchange. **STUFFING NUT** is Brass. **PISTON ROD** is polished steel, threaded at the lower end for 7/16-inch rod and for ⅜-inch pipe. **BRASS-COVERED PISTON RODS** can be furnished at an additional cost.

REGULARLY FITTED: 1¼-inch Well Pipe, 6-inch Stroke, 1-inch Back Outlet and Plain Spout. If wanted with different Tapping, Stroke or Spout, specify definitely on order.

Length of Stroke.....inches	6	10	Adjustable
Fig. 16½ L. F. No. 0.....	10.50	11.50	12.00
" 16½ L. F. " 1.....	11.00	12.00	12.50
" 16½ L. F. " 2.....	12.00	13.00	13.50

Extra for Cock Spout, 2.50

BOLTED SPOUTS

PLAIN

SIPHON

LEVER HANDLE

COMPRESSION

WINDMILL FORCE PUMP STANDARDS

FOR HAND, WINDMILL OR PUMP JACK — BOLTED CAPS

FIG. 16¾, No. 0

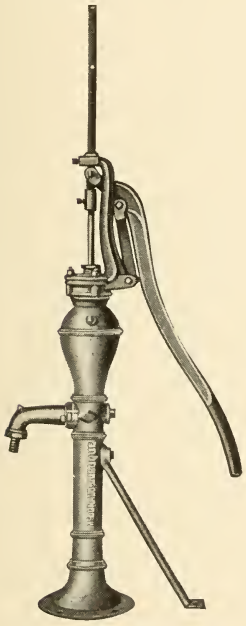


FIG. 16¾, No. 1

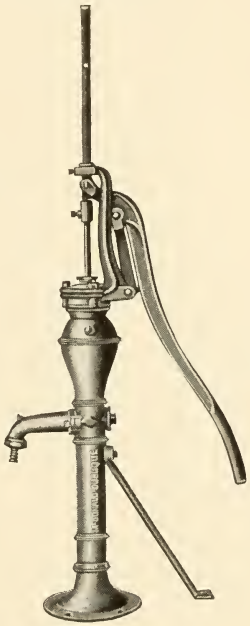
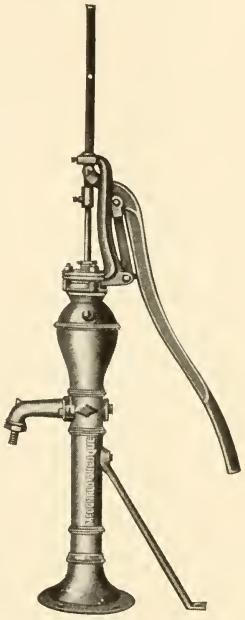


FIG. 16¾, No. 2



These illustrations show our Fig. 16¾ Pump, **No. 0** being Standard, **No. 1** Heavy and **No. 2** Extra Heavy. They are shown in 6-inch stroke, but can be furnished with 10-inch Stroke or with Adjustable (6, 8 and 10-inch) Stroke. Shown with **BOLTED PLAIN SPOUTS**, but the spouts shown below will interchange. These pumps are suitable for wells of almost any depth. We recommend No. 1 or No. 2 when wells exceed 200 feet deep.

CAPS are fastened to the standard by three strong vertical hook bolts. **STANDARDS** are tapped in rear of spout for 1, 1¼, 1½ or 2-inch pipe. Tapped for 1¼, 1½ or 2-inch well pipe just below the spout. No. 2 can be tapped for 2½ or 3-inch pipe about 4 inches above the base. Removal of the cap permits the passage through standard of 2¾-inch tubular valves. **PISTON ROD** is polished steel, threaded for 7/16-inch rod and ⅜-inch pipe. **BRASS-COVERED PISTON RODS** can be furnished. **STUFFING NUT** is Brass.

REGULARLY FITTED: 1¼-inch Well Pipe, 6-inch Stroke, 1-inch Back Outlet and Plain Spout. If wanted with different Tapping, Stroke or Spout, specify on order.

Length of Stroke.....inches	6	10	Adjustable
Fig. 16¾, No. 0.....	10.00	11.00	11.50
" 16¾ " 1.....	10.50	11.50	12.00
" 16¾ " 2.....	11.50	12.50	13.00

Extra for Cock Spout, 2.50. Extra for Long Fulcrum to Base, 1.00.

BOLTED SPOUTS

PLAIN

SIPHON

LEVER HANDLE

COMPRESSION

WINDMILL FORCE PUMP STANDARDS

FOR HAND, WINDMILL OR PUMP JACK SOLID ONE-PIECE ROD

FIG. 116½, No. 0

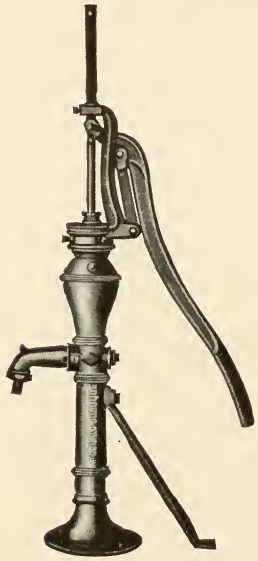


FIG. 116½, No. 1

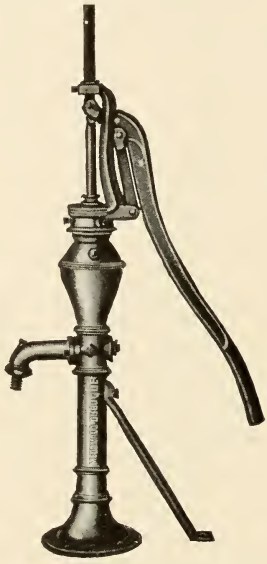
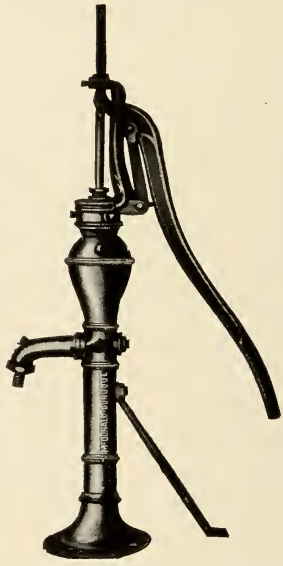


FIG. 116½, No. 2



These pumps are in three sizes and weights, **No. 0,** being standard, **No. 1,** heavy, and **No. 2,** Extra Heavy. Shown with **PLAIN SPOUTS,** but the spouts shown below will interchange. Illustrations show 6-inch Stroke, but they can be furnished with 10-inch Stroke, or Adjustable (6, 8 and 10-inch) Stroke. Suitable for wells of almost any depth. We recommend No. 1 or No. 2, when wells exceed 200 feet in depth.

SOLID ONE-PIECE PISTON ROD is 1 1/16-inch polished steel, welded at the upper end to 1x½-inch flat slide rod; threaded for 7/16-inch rod and ⅜-inch pipe, but it can be threaded for ⅝ or ⅞-inch box pin coupling. **BRASS STUFFING NUT** permits the whole Piston Rod and Slide Rod to pass through it.

STANDARDS are tapped in rear of spout for 1, 1¼, 1½ or 2-inch pipe. Tapped for 1¼, 1½ or 2-inch well pipe just below the spout. No. 2 can be tapped for 2½ or 3-inch well pipe. **STUFFING BOXES** are large enough to permit the withdrawal of tubular valves of same size as well pipe. **CAPS** are fastened to the standard by three ½-inch set screws.

REGULARLY FITTED: 1¼-inch Well Pipe, 6-inch Stroke, 1-inch Back Outlet and Plain Spout. If wanted with different tapping, stroke or spout, specify on order.

Length of Stroke.....inches	6	10	Adjustable
Fig. 116½, No. 0.....	10.00	11.00	11.50
" 116½, " 1.....	10.50	11.50	12.00
" 116½, " 2.....	11.50	12.50	13.00

Extra for Cock Spout, 2.50. Extra for Long Fulcrum to Base, 1.00.

BOLTED SPOUTS

PLAIN

SIPHON

LEVER HANDLE

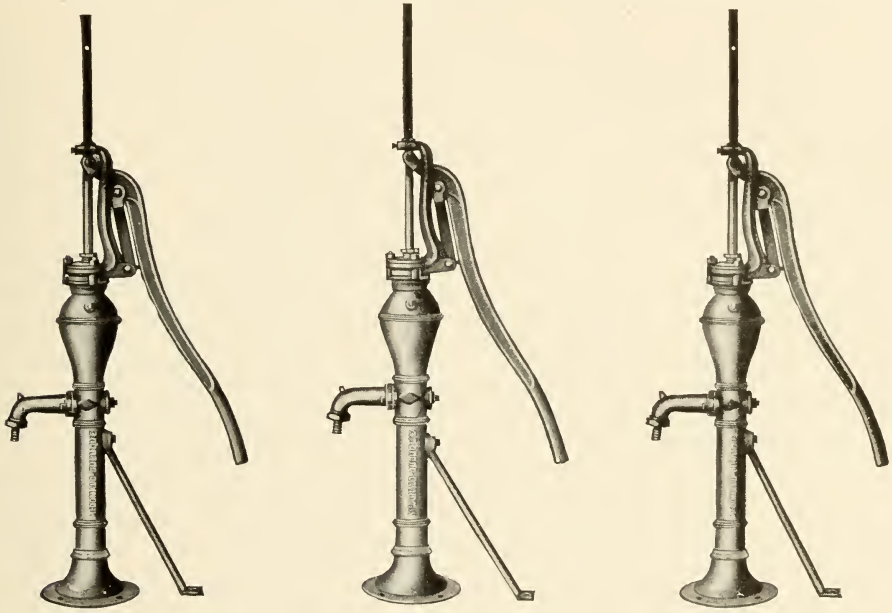
COMPRESSION

WINDMILL FORCE PUMP STANDARDS

SOLID ONE-PIECE ROD **BOLTED CAP**

FOR HAND, WINDMILL OR PUMP JACK

FIG. 116¾, NO. 0 **FIG. 116¾, NO. 1** **FIG. 116¾, NO. 2**



These Pumps are in three sizes and weights, **No. 0** being Standard, **No. 1**, Heavy, and **No. 2**, Extra Heavy. They have Plain **SPOUTS**, bolted to the standard, but the Spouts shown below will interchange. Shown with 6-inch Stroke, but can be furnished with 10-inch Stroke, or Adjustable (6, 8 and 10-inch) Stroke. Suitable for wells of almost any depth. We recommend No. 1 or No. 2, where wells exceed 200 feet in depth.

SOLID ONE-PIECE PISTON ROD is 1 1/16-inch polished steel, welded at the upper end to the 1x½ flat slide rod; threaded for 7/16-inch rod and ⅜-inch pipe, but it can be threaded for ⅝ or ⅞-inch box pin coupling.

CAPS are fastened to the standard by 3 strong vertical hook bolts. **STUFFING NUT** is Brass, and permits slide and piston rod to pass through it. **STANDARDS** are tapped in rear of spout for 1, 1¼, 1½ or 2-inch pipe. Tapped for 1¼, 1½ or 2-inch well pipe just below the spout. No. 2 can be tapped for 2½ or 3-inch pipe. Removal of the cap permits the passage of 2¾-inch tubular valves.

REGULARLY FITTED: 1¼-inch Well Pipe, 6-inch Stroke, 1-inch Back Outlet and Plain Spout. If wanted with different Tapping, Stroke or Spout, specify on order.

Length of Stroke ..... inches	6	10	Adjustable
Fig. 116¾, No. 0	10.50	11.50	12.00
" 116¾ " 1	11.00	12.00	12.50
" 116¾ " 2	12.00	13.00	13.50

Extra for Cock Spout, 2.50. Extra for Long Fulcrum to Base, 1.00.

BOLTED SPOUTS

PLAIN

SIPHON

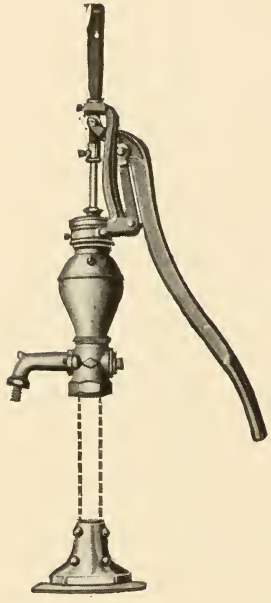
LEVER HANDLE

COMPRESSION

ADJUSTABLE BASE WINDMILL FORCE PUMP STANDARD

FOR HAND, WINDMILL OR PUMP JACK

FIG. 216½



This cut shows our **ADJUSTABLE BASE FORCE PUMP,** which is very popular in many tubular well territories, as the adjustable base saves the necessity of accurately cutting off the well pipe.

Made in two sizes, **No. 0** for 2-inch pipe, as shown, and **No. 2** for either 2½ or 3-inch pipe. No. 0 has an adjustable split grip base, with large gripping surface, firmly fastened with four strong bolts. No. 2 has a solid base or flange fastened to the pipe by two strong set screws.

PISTON ROD is $\frac{11}{16}$-inch polished steel, connected to 1x½-inch flat slide rod by means of our set screw coupling. Brass-covered piston rod can be furnished at a slight additional cost. **ONE-PIECE ROD, $1\frac{1}{16}$-INCH DIAMETER POLISHED STEEL,** welded to 1x½-inch flat slide rod, can be furnished if desired, at an added cost. All piston rods are threaded for $\frac{7}{16}$-inch rod, and also for ⅜-inch pipe for regular wood rod coupling. $1\frac{1}{16}$-inch Piston Rods can be threaded for ⅝ or ⅞-inch box pin coupling, without extra charge.

CAP fastened to stock by three ½-inch steel set screws, but we can furnish the pump with the bolted cap if desired, at a small advance in cost.

REMOVABLE CHILLED BOX, fastened in the top of cap by set screw, takes all of the wear of the slide rod. It is easily removed when worn.

STUFFING BOX on the No. 0 pump permits the withdrawal of 2-inch tubular valves; on the No. 2 pump for 2½ or 3-inch pipe, when furnished with set screw cap, it will permit the withdrawal of 3-inch tubular valves, but only 2¾-inch tubular valves when bolted cap is used. **STUFFING NUT** is cast brass.

THESE PUMPS CAN BE FURNISHED WITH EITHER SET SCREW OR BOLTED CAP; PLAIN, SIPHON OR BOLTED COCK SPOUT; 6-INCH, 10-INCH OR ADJUSTABLE STROKE; WITH TWO-PIECE COUPLED PISTON ROD OR SOLID ONE-PIECE ROD.

Tapped in rear of spout 1, 1¼, 1½ or 2 inch, but always sent with rear outlet for 1-inch pipe unless otherwise ordered.

In ordering, be careful to specify number of pump, size of tapping, length of stroke and kind of cap and piston rod wanted. Unless otherwise specified, No. 0 will be sent, 6-inch stroke, 2-inch pipe, plain bolted spout, set screw cap, as shown.

Bolted siphon spout will be furnished at same price as bolted plain spout.

Length of Stroke.....inches	6	10	Adjustable
Price, Fig. 216½, No. 0.....each	9.50	10.50	11.00
" " 216½, " 2..... "	11.50	12.50	13.00

Extra for Cock Spout, 2.50. Extra for Bolted Cap, .50.
Extra for Solid One-Piece rod, .50.

BOLTED SPOUTS

PLAIN

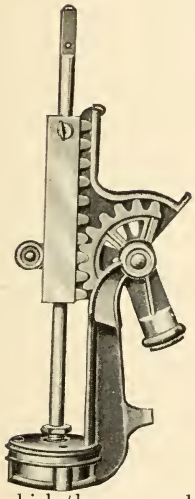
SIPHON

LEVER HANDLE

COMPRESSION

RACK AND PINION FORCE PUMPS

FOR HAND AND WINDMILL USE



These pumps are shown on the following page as figure 316.

The construction of all of our Rack and Pinion Pumps gives them unusual strength, power and wearing qualities, as all points of strain are re-enforced, the parts heavy and substantial yet symmetrical and neat in appearance.

The rack and pinion also gives to these pumps a most powerful leverage, hence they work easily and are therefore recommended for deep wells or other heavy work where it is desirable or essential to lighten the load. In the average pump the short arm of the lever (i. e. from the fulcrum pin to the slide rod pin) measures 4½-inches long, while in the construction of the rack and pinion pumps the short arm of the lever measures only 3 inches, and this gives to the rack and pinion style of pump an additional power of approximately 50 per cent.

The illustrations practically speak for themselves, yet it may not be amiss to call special attention to the several main points of merit, i. e. the short leverage, the absence of side friction and oscillation, and the direct up and down motion of the gear rack against the roller, all combining to make these the easiest working type of hand and windmill pump.

The cap is fastened to the stock by three large hook bolts, which is the strongest possible fastening. The cap is so constructed that it carries the gear segment and handle, and a roller against which the gear rack works. The cap is also an ornamental shield protecting the gear segment and the gear rack and likewise protects the user from any chance of injury while operating the pump.

The gear segment is strong and has large heavy teeth. The handle is 1-inch pipe and screwed into the segment at a slight angle which gives best leverage. The pipe handle can be lengthened if necessary for very heavy service and is fitted with an ornamental weight at lower end.

The gear rack has a round hole through its entire length, this hole being large enough to permit the 1 1/16-inch round piston rod to work up and down through the gear rack when operated by windmill.

The piston rod is 1 1/16-inch round drawn solid steel and is regularly made for 6-inch hand stroke and 10-inch power stroke. The top of the piston rod is welded to a 1-inch by ½-inch flat bar, so that the usual windmill connection can be used. Piston Rods are threaded at the lower end for 7/16-inch rod and ⅜-inch pipe, but can be threaded for ⅝ or ⅞-inch box pin coupling.

The gear rack and piston rod are connected together by the rod pin when the handle is worked by hand. When windmill or pump jack does the pumping, the rod pin is removed and the piston rod moves up and down through the gear rack without moving any other part of the pump.

The stuffing box is cast brass and of ample size, fitting the piston rod, which is 1 1/16-inch diameter.

All pins used in the construction of these pumps are heavy forged pins.

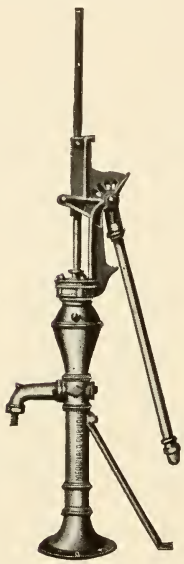
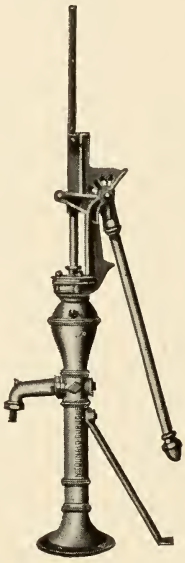
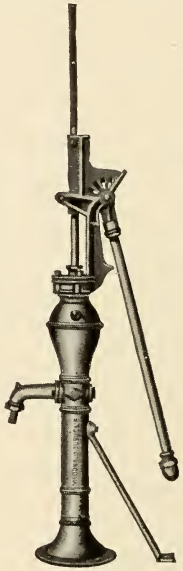
ONE PARTICULAR FEATURE OF THIS STYLE OF CONSTRUCTION IS THAT WHILE THE HAND STROKE IS ALWAYS 6 INCHES LONG, THE POWER STROKE MAY BE ANY ADDITIONAL LENGTH UP TO 24 INCHES OR LONGER IF SO ORDERED, AT AN ADDITIONAL COST.

Even though a pump is primarily intended for operation by means of windmill or pump-jack, it is nevertheless often necessary to pump some water by hand; at such times an easy working pump is wanted, and the **RACK AND PINION PUMP OF OUR MAKE IS THE EASY WORKING PUMP.**

RACK AND PINION FORCE PUMPS

FOR HAND AND WINDMILL USE

FIG. 316, No. 0 FIG. 316, No. 1 FIG. 316, No. 2

See preceding page for general description of Rack and Pinion Pumps. Above illustrations represent our Figure 316, which is made in three sizes as shown: **No. 0, No. 1,** and **No. 2,** each size being larger and heavier than the one preceding. All parts will interchange. **CAP** is fastened to stock by three hook bolts. **PISTON ROD** is 1 1/16-inch round drawn steel and is welded to 1x1½-inch flat rod above cap for windmill attachment. **BRASS STUFFING NUT** fits 1 1/16-inch round piston rod and is large enough inside diameter to permit 1x½-inch slide rod to slip through brass nut. **SPOUT** is bolted to stock of pump, and is fitted with ¾ or 1-inch union hose coupling. **BOLTED SIPHON SPOUT** can be furnished without extra cost if desired. **BOLTED COCK SPOUTS** can be furnished at an extra charge. Pumps are always tapped for 1¼-inch pipe unless otherwise ordered. No. 0 and No. 1 can be tapped for 1½ or 2-inch when desired. No. 2 can be tapped for 1¼, 1½, 2, 2½ or 3-inch as desired, but when tapped for 2½ or 3-inch pipe there will be a small extra charge. Pump is tapped in rear of spout for 1-inch pipe and plugged, but can be tapped for 1¼, 1½ or 2-inch when so ordered.

THESE PUMPS ARE REGULARLY SENT WITH 6-INCH HAND STROKE AND FOR 10-INCH POWER STROKE. THEY CAN BE FITTED FOR POWER STROKE UP TO 24 INCHES OR LONGER IF SO DESIRED, AT AN EXTRA CHARGE.

	Size	No. 0	No. 1	No. 2
Price, 6-inch Hand, 10-inch Power Stroke	each	12.00	12.50	13.50
" 6 " " 12 " " "	"	12.50	13.00	14.00

Extra for Cock Spout, 2.50.

BOLTED SPOUTS

PLAIN

SIPHON

LEVER HANDLE

COMPRESSION

EXTRA HEAVY BOLTED FORCE PUMP STANDARD

FOR HAND, WINDMILL OR PUMP JACK

FIG. 216

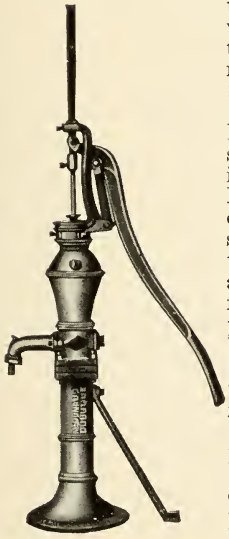


Illustration shows our Fig. 216 Standard, which is bolted together just below the spout. As it can be operated by either hand, windmill or pump jack, it is suitable for wells of any depth, especially tubular wells (being tapped for 3, 2½ or 2-inch pipe), or in connection with cylinders of large diameter. All parts of the pump are **EXTRA LARGE AND EXTRA HEAVY.**

STANDARD consists of three parts: the Base Section, the Pipe Flange and the Spout Section. **BASE SECTION** has a very wide, strong flange, being intended for extremely heavy duty, and the inside diameter permits 3-inch pipe to pass through to the Pipe Flange above. **PIPE FLANGE** is tapped for 3, 2½ or 2-inch pipe, as ordered, and firmly fastened between base and spout section by four strong bolts. **SPOUT SECTION** forms the Air Chamber, and an inner tube extending down from the stuffing box prevents the escape of air around the piston rod. Standard can be fitted with either of the four spouts shown below, and is tapped in the rear of spout for 2-inch pipe to conduct water to any desired point. This back outlet can be furnished for 2½-inch pipe, at a small advance in cost.

SPOUTS, shown below, are bolted to the spout section, and will interchange. They have a union connection for ¾-inch hose (or for 1-inch hose if desired).

CAP is fastened to the spout section by three ½-inch set screws, permitting the handle to be placed in any position. **REMOVABLE CHILLED BOX** in top of cap takes the wear of the slide rod, and can easily be replaced when worn. **HANDLE** is the longest and strongest we make. **FULCRUM** has an extra wide base, providing a long bearing on the pin to prevent excessive wear and breakage. **SLIDE ROD** and **POLISHED STEEL PISTON ROD** are connected by a strong and convenient set screw coupling. **PISTON ROD** is threaded for 7/16-inch rod, and for ⅜-inch pipe to fit regular wood rod coupling. It can also be threaded for ⅝-inch box pin coupling without extra charge. Brass-Covered Piston Rod can be furnished at added cost. **FORGED PINS** ⅝-inch diameter, connect cap, handle and fulcrum.

STUFFING NUT is brass. **IRON STUFFING BOX** screws into the top of spout section, and is large enough to permit the passage of 2-inch tubular well valves. **STROKE** as shown is 6-inch, but the pump can be furnished with 10-inch stroke or Adjustable stroke, as ordered.

This Pump is very popular for tubular wells and where large cylinders are suspended from the pump, as it permits the removal of the Spout Section, when rod or cylinder is being repaired, without disturbing the Base Section.

REGULARLY FITTED: 3-inch Well Pipe, 6-inch Stroke, 2-inch Back Outlet and Plain Spout. If wanted with different Tapping, Stroke or Spout specify definitely on order. Approximate weight 115 pounds.

Stroke.....inches	6	10	Adjustable
Price.....each	**12.00**	**13.00**	**13.50**

Extra for Cock Spout, 2.50.

BOLTED SPOUTS

PLAIN

SIPHON

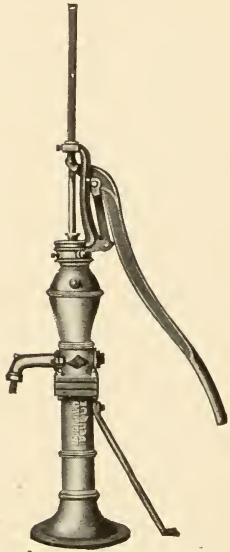
LEVER HANDLE

COMPRESSION

EXTRA HEAVY BOLTED FORCE PUMP STANDARD

FOR HAND, WINDMILL OR PUMP JACK

FIG. 216 S. R.



This cut illustrates our Fig. 216 S. R. Standard, which is bolted together just below the spout. As it can be operated by either hand, windmill or pump jack, it is suitable for wells of any depth, especially tubular wells (being tapped for 3, 2½ or 2-inch pipe), or in connection with cylinders of large diameter. All parts of the pump are **EXTRA LARGE AND EXTRA HEAVY.**

STANDARD consists of three parts: the Base Section, the Pipe Flange and the Spout Section. **BASE SECTION** has a very wide, strong flange, being intended for extremely heavy duty, and the inside diameter permits 3-inch pipe to pass through to the pipe flange above. **PIPE FLANGE** is tapped for 3, 2½ or 2-inch pipe, as ordered, and is firmly fastened between base and spout section by four large bolts. **SPOUT SECTION** forms the Air Chamber, an inner tube extending down from the stuffing box preventing escape of air around the piston rod. Either of the four spouts shown below can be bolted to it. It is tapped in the rear of spout for 2-inch pipe, so that water can be conducted to any desired point. This back outlet can be furnished for 2½-inch pipe, at a small advance in price.

SPOUTS, shown below, are bolted to the spout section, and will interchange. They have a union connection for ¾-inch hose (or for 1-inch hose if desired).

PISTON ROD is 1 1/16-inch polished steel, welded to the 1x½-inch flat slide rod for windmill or pump jack connection, eliminating the usual set screw coupling, and providing extreme strength, adapting the pump for heavy duty. All Piston Rods are threaded for 7/16-inch rod, and ⅜-inch pipe for regular wood rod coupling. It can also be threaded for ⅝ or ⅞-inch box pin coupling without extra charge. This solid one-piece Piston Rod is desirable for heavy work, as it is much stronger than the two-piece rod.

CAP is fastened to the spout section by three ½-inch set screws, which permit the handle to be placed in any position. **REMOVABLE CHILLED BOX**, in top of cap, takes the wear of the slide rod and can easily be replaced when worn. **HANDLE** is the longest and strongest we make. **FULCRUM** has an extra wide base, providing a long bearing on the pin, and preventing excessive wear and breakage. **FORGED PINS**, ⅝-inch diameter, connect cap, handle and fulcrum.

STUFFING NUT is brass. **IRON STUFFING BOX** screws into the top of spout section, and is large enough to permit the passage of 2-inch tubular well valves. **STROKE** as shown is 6-inch, but the pump can be furnished with 10-inch or Adjustable (6, 8 and 10-inch), Stroke, as ordered.

This Pump is very popular for tubular wells and where large cylinders are suspended from it, as it permits the removal of the Spout Section, when rod or cylinder is being repaired without disturbing the Base Section.

REGULARLY FITTED: 3-inch Well Pipe, 6-inch Stroke, 2-inch Back Outlet and Plain Spout. If wanted with different Spout, Stroke or Tapping, specify definitely in ordering. Approximate weight 115 pounds.

Stroke.....inches	6	10	Adjustable
Price, Fig. 216 S. R.....each	12.50	13.50	14.00

Extra for Cock Spout, 2.50.

BOLTED SPOUTS

PLAIN

SIPHON

LEVER HANDLE

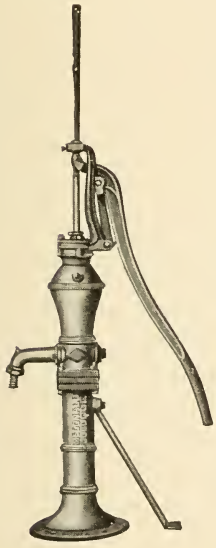
COMPRESSION

Pumps will be furnished with Siphon Spout at the same price as Plain Spout.

EXTRA HEAVY BOLTED FORCE PUMP STANDARD

FOR HAND, WINDMILL OR PUMP JACK

FIG. 216 B. C.



This cut illustrates our Fig. 216 B. C. Standard, which is bolted together just below the spout. As it can be operated by either hand, windmill or pump jack, it is suitable for wells of any depth, especially tubular wells (being tapped for 3, 2½ or 2-inch pipe), or in connection with cylinders of large diameter. All parts are **EXTRA LARGE AND EXTRA STRONG.**

STANDARD consists of three parts: the Base Section, the Pipe Flange and the Spout Section. **BASE SECTION** has a very wide, strong flange, being intended for extremely heavy duty, and the inside diameter permits 3-inch pipe to pass through to the pipe flange above. **PIPE FLANGE** is tapped for 3, 2½ or 2-inch pipe, as ordered, and is firmly fastened between the base and spout section by four large bolts. **SPOUT SECTION** forms the Air Chamber, an inner tube extending down from the stuffing box preventing the escape of air around the piston rod. It is tapped in the rear of the spout for 2-inch pipe, so that water can be conducted to any desired point. This back outlet can be furnished for 2½-inch pipe, at a small advance in price.

SPOUTS, shown below, are bolted to the spout section, and will interchange. They have a union connection for ¾-inch hose (or 1-inch if desired).

CAP is fastened to the spout section by three strong hook bolts, **STUFFING BOX** is part of the Cap with an inner tube extending downward to prevent the escape of air around the piston rod. **STUFFING NUT** is brass, and permits the flat slide rod to pass through it. **REMOVABLE CHILLED BOX** in the top of the cap, takes the wear of the slide rod, and can easily be replaced when worn. **HANDLE** is the longest and strongest we make. **FULCRUM** has an extra wide base, providing a long bearing on the pin. **FORGED PINS,** ⅝-inch diameter, connect the cap, handle and fulcrum.

PISTON ROD is 1 1/16-inch polished steel, welded to the 1x½-inch flat slide rod for windmill or pump jack connection, eliminating the usual set screw coupling and providing extreme strength, adapting the pump for heavy duty. All Piston Rods are threaded for 7/16-inch rod, and for ⅜-inch pipe for regular wood rod coupling. It can be threaded for ⅝ or ⅞-inch box pin coupling without extra charge. This solid one-piece Piston Rod is desirable for heavy work, as it is much stronger than the two-piece rod. **STROKE** as shown is 6-inch, but the pump can be furnished with 10-inch or Adjustable (6, 8 and 10-inch) Stroke, as ordered.

This Pump is very popular for tubular wells and where large cylinders are suspended from it, as the Spout Section can be removed, when rod or cylinder is being repaired, without disturbing the Base Section.

REGULARLY FITTED: 3-inch Well Pipe, 2-inch Back Outlet, 6-inch Stroke and Plain Spout. If wanted with different Stroke, Spout or Tapping, specify definitely in ordering. Approximate weight 115 pounds.

Stroke.....inches	6	10	Adjustable
Price.....each	13.00	14.00	14.50
Extra for Cock Spout.....		2.50	

BOLTED SPOUTS

PLAIN

SIPHON

LEVER HANDLE

COMPRESSION

EXTRA HEAVY BOLTED FORCE PUMP STANDARD

FOR HAND, WINDMILL OR PUMP JACK

FIG. 216 R.

Illustration shows our Fig. 216 R. Rack and Pinion Standard, which is bolted together just below the spout. As it can be operated by either hand, windmill or pump jack, it is suitable for wells of any depth, especially tubular wells (being tapped for 3, 2½ or 2-inch pipe), or in connection with cylinders of large diameter. All parts are **EXTRA LARGE AND EXTRA HEAVY.**

RACK AND PINION HEAD adapts it to hand operation in deep wells. Leverage on Rack and Pinion Pumps is better than on other styles, as it only measures 3 inches from center of handle pin to teeth of gear, while ordinary 6-inch stroke pumps measure 4½ inches from handle pin to center of slide rod. Removing pin from the gear and slide rod permits the slide rod to be operated by windmill or pump jack without any movement of the handle. **SLIDE ROD** works in absolutely vertical lines, and the **ROLLER** opposite the gear segment minimizes friction. All parts are strong and substantial. **WROUGHT IRON HANDLE** is long, and is screwed into the Gear Segment. **GEAR SEGMENT AND GEAR** are thoroughly encased, making injury to the operator impossible.

STANDARD consists of three parts: the Base Section, the Pipe Flange and the Spout Section. **BASE SECTION** has a very wide, strong flange, being intended for extremely heavy duty, and the inside diameter permits 3-inch pipe to pass through to the pipe flange above. **PIPE FLANGE** is tapped for 3, 2½ or 2-inch pipe as ordered, and is firmly fastened between the base and spout section by four large bolts. **SPOUT SECTION** forms the Air Chamber, an inner tube extending down from the stuffing box preventing the escape of air around the piston rod. Spout can be either of the four shown below, as they will interchange. **TAPPED** in the rear of the spout for 2-inch pipe, so that water can be conducted to any desired point.

PISTON ROD is 1 1/16-inch polished steel, welded to the 1x½-inch flat slide rod for windmill or pump jack connection, and is much stronger than the regular coupled piston and slide rod. Threaded at the lower end for 7/16-inch rod, and for ⅜-inch pipe for regular wood rod coupling. It can be threaded for ⅝ or ⅞-inch box pin coupling without extra charge. **STUFFING NUT** is Brass, and permits the slide rod to pass through it. **STUFFING BOX** is a part of the Cap with an inner tube extending down into the air chamber to prevent escape of air around the piston rod.

STROKE is always 6 inches for operation by hand, and regularly 10 inches for operation by windmill or pump jack. We can furnish this pump for a power stroke up to 24 inches if so desired, as listed below. **SPOUTS**, shown below, are bolted to the spout section, and will interchange. They have a union connection for ¾-inch hose (or 1-inch if desired).

This Pump is very popular for tubular wells and where large cylinders are suspended from it, as the Spout Section can be removed, when rod or cylinder is being repaired without disturbing the Base Section.

REGULARLY FITTED: 3-inch Well Pipe, 2-inch Back Outlet, 6-inch Hand Stroke and 10-inch Power Stroke, and with Plain Spout. If wanted with different Power Stroke, Spout or Tapping, specify definitely in ordering.

Approximate weight 115 pounds.					
Length Power Stroke.....inches	10	12	15	18	24
Price, Fig. 216 R., 6-inch Hand Stroke always .....each	**14.50**	**15.00**	**15.75**	**16.75**	**19.25**

Extra for Cock Spout, 2.50.

BOLTED SPOUTS

PLAIN

SIPHON

LEVER HANDLE

COMPRESSION

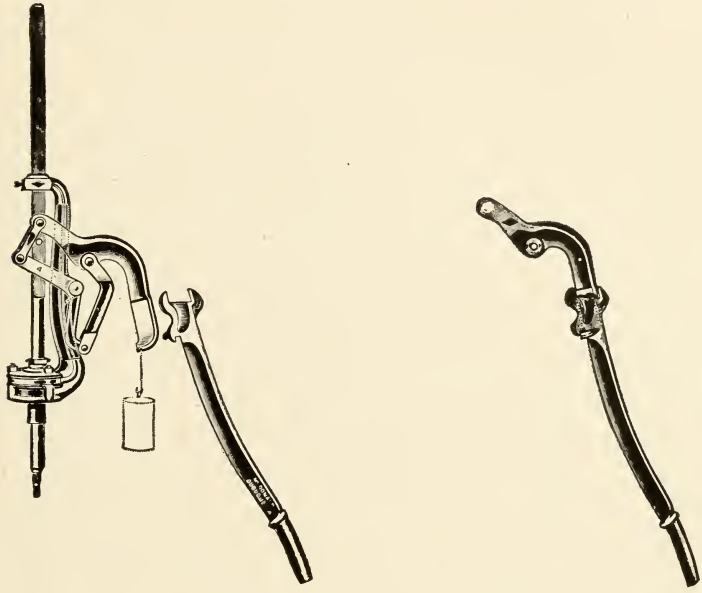
Pumps will be furnished with Siphon Spout at the same price as Plain Spout.

DIAMOND SPECIAL PUMPS

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR

OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

Patented March 12, 1907, and July 31, 1900



Above illustration shows the working parts of our Diamond Special Pump. Note the Rocker Arm, No. 4, which gives the **COMPOUND LEVERAGE,** assisting the handle to raise the slide rod by a pressure equal to the downward pressure on the fulcrum. That is the reason these pumps only require one-half the power to operate them.

The dotted lines indicate how a weight can be attached to the Socket of Detachable Handle. This weight can be sufficiently heavy to balance the weight of the pump rod, and assists very materially in relieving the load on the windmill. This weight can be quickly removed for hand operation.

The Compound Leverage and Easy Working features appealed to us so strongly that we have made arrangements for their manufacture and sale.

THESE PUMPS CAN BE OPERATED BY HAND WITH ONLY ONE-HALF THE POWER REQUIRED BY THE ORDINARY 6-INCH STROKE PUMPS, AND WITHOUT SHORTENING THE STROKE OR LENGTHENING THE SWEEP OF HAND END OF THE HANDLE.

The Rocker Arm No. 4 is the compound lever, which gives an upward lift to the slide rod equal to the downward pressure on the fulcrum, assisting the handle in raising the slide rod, and reducing, by one-half, the power required to operate the pump. In all other pumps the downward pressure on the fulcrum is sustained by the cap of the pump without assisting the upward movement of the slide rod.

Regardless of the fact that many pumps are operated by windmill or other power, a large number of pumps are still operated by hand, and nearly all pumps which have windmills or pump jacks are operated by hand occasionally, and then it is a great advantage to have the easy working pump even if it is only for an occasional pail of fresh water for drinking or cooking.

The Detachable Handle is a separate patent. It has the decided advantage of not requiring the handle to be disconnected from the slide rod when windmill or pump jack operates the pump.

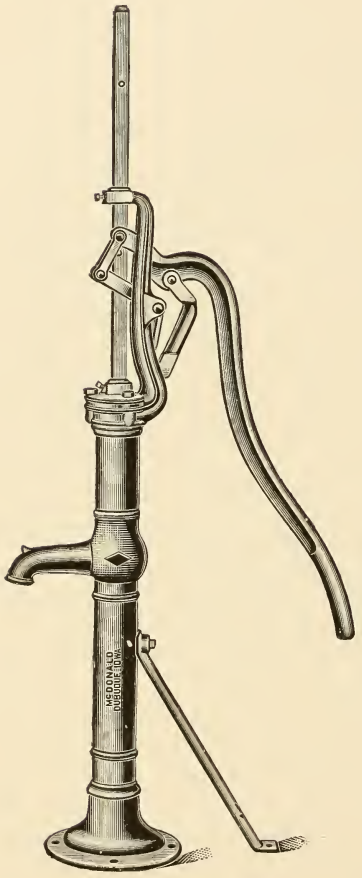
DIAMOND SPECIAL LIFT PUMPS

FOR HAND USE

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

FIG. 609

Patented March 12, 1907



These pumps are made in two sizes and weights, No. 2 being larger and heavier than No. 1½.

They have one-piece or solid handles and are particularly intended for operation by hand, though they can be used in connection with windmills and pump jacks.

CAPS are securely fastened to the standard by three strong hook bolts, which permit the handle to be placed in any desired position.

REMOVABLE CHILLED BOXES take the wear of slide rod at both the top and bottom of cap and can readily be replaced when worn.

SLIDE ROD is 1-inch x ½-inch flat bar, threaded at the lower end for 7/16-inch rod. When pump is tapped for 2-inch pipe, the slide rod is threaded for both 7/16-inch rod and for ⅜-inch pipe to fit regular wood rod coupling.

STROKE is 6 inches.

PINS, which connect Cap, Rocker Arm, Fulcrum, Handle and Slide Rod, are large diameter, forged steel, much better than the small bolts so commonly used.

Tapped just below the spout for 1¼, 1½ or 2-inch pipe, as desired, but are always sent tapped for 1¼-inch pipe unless otherwise ordered.

Either size pump is suitable for wells of any depth.

Price, Fig. 609, No. 1½	each	**6.70**
" " 609 " 2	"	**7.10**

In ordering, state number and figure of pump, and size of tapping desired. Unless otherwise ordered they will be sent tapped for 1¼-inch pipe.

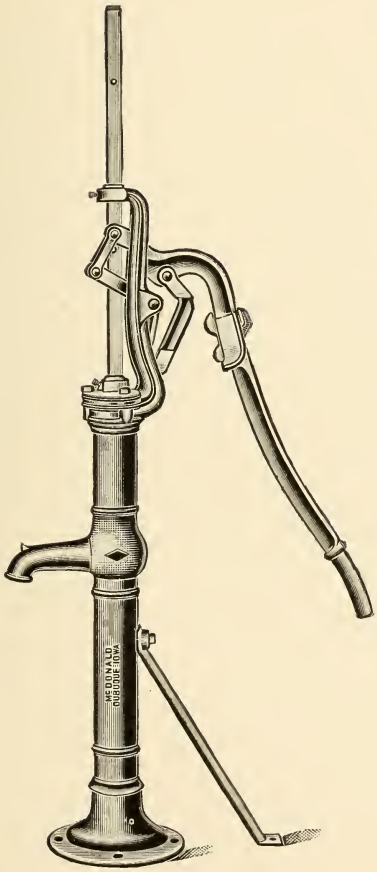
DIAMOND SPECIAL LIFT PUMPS

FOR WINDMILL, PUMP JACK OR HAND USE

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

FIG. 609D

Patented March 12, 1907, and July 31, 1900



These pumps are made in two sizes and weights, No. 1½ being smaller and lighter than No. 2.

DETACHABLE HANDLES are provided to avoid the necessity of disconnecting the handle from slide rod when windmill or pump jack is operating the pump.

Another advantage of this detachable handle is that a weight can be hung on it to balance the weight of the plunger rod, relieving the windmill of that much load.

These detachable handles can be connected or disconnected in a second or two, the two parts of the handle interlocking securely when connected.

CAPS are securely fastened to the standard by three strong hook bolts, which permit the handle to be placed in any position.

REMOVABLE CHILLED BOXES take the wear of the slide rod at both the top and bottom of cap and can readily be replaced when worn.

SLIDE ROD is 1x½-inch flat bar, threaded at the lower end for 7/16-inch rod. When pump is tapped for 2-inch pipe, the slide rod is also threaded for ⅜-inch pipe to fit regular wood rod coupling.

STROKE is 6 inches.

PINS, connecting Cap, Rocker Arm, Fulcrum, Handle and Slide Rod, are large diameter, forged steel, much better than the small bolts so commonly used.

Tapped just below the spout for 1¼, 1½ or 2-inch pipe, as desired, but always sent tapped for 1¼-inch pipe unless otherwise ordered.

Either size pump is suitable for wells of any depth.

Price, Fig. 609D, No. 1½	each	7.50
" " 609D, " 2	"	7.90

In ordering state number and figure of pump and size of tapping desired. Unless otherwise ordered, they will be sent tapped for 1¼-inch pipe.

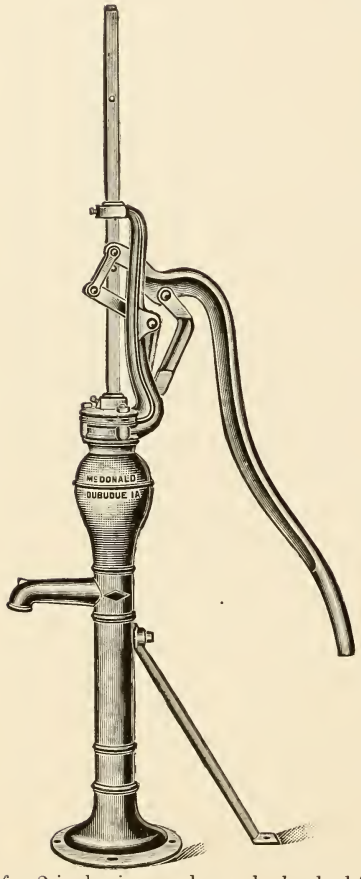
DIAMOND SPECIAL LIFT PUMPS

FOR HAND USE

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

FIG. 612

Patented March 12, 1907



These pumps are made in three sizes, No. 0 being the Standard, No. 1 the Heavy, No. 2 the Extra Heavy.

They have solid or one-piece handles and are particularly intended for operation by hand, though they can be used in connection with windmills and pump jacks.

They are adapted for use on shallow wells, in connection with cylinders of large diameter discharging large volumes of water. They have **EXTRA LARGE SPOUTS,** measuring full 2-inch inside diameter. They may also be used on the deepest wells with cylinders of smaller diameter.

The globe-shaped reservoir above the spout gives an attractive appearance to these pumps; and has the advantage of holding enough water, during rapid operation of pump, to prevent water from splashing out around the rod.

CAPS are securely fastened to the standard by three strong hook bolts, which permit the handle to be turned in any direction.

REMOVABLE CHILLED BOXES take the wear of slide rod at both top and bottom of cap, and can easily be replaced when worn out.

SLIDE ROD is 1x½-inch flat bar, threaded at the lower end for 7/16-inch rod and for ⅜-inch pipe to fit regular wood rod coupling.

STROKE is 6 inches.

PINS, forged steel, large diameter, connect Cap, Rocker Arm, Fulcrum, Handle and Slide Rod, and are much better than the small bolts so commonly used.

No. 0 and No. 1 are tapped just below the spout for 2-inch pipe, and may be bushed for 1½ or 1¼-inch pipe. No. 2 is regularly tapped for 2-inch pipe at the spout, but may be tapped for 2½ or 3-inch pipe at a point about 4-inches above the base. A small extra charge is made for 2½ or 3-inch tapping.

Any size of these pumps is suitable for wells of any depth.

Price, Fig. 612, No. 0	each	**7.10**
" " 612, " 1	"	**7.50**
" " 612, " 2	"	**7.90**

In ordering, state number and figure of pump and size of tapping desired. Unless otherwise ordered, they will be sent tapped for 2-inch pipe.

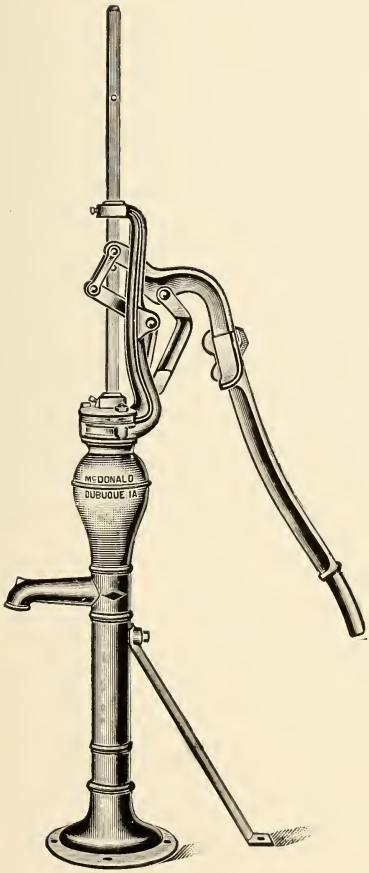
DIAMOND SPECIAL LIFT PUMPS

FOR WINDMILL, PUMP JACK OR HAND USE

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

FIG. 612D

Patented March 12, 1907, and July 31, 1900



These pumps are made in three sizes, No. 0 being the Standard, No. 1 the Heavy, and No. 2 the Extra Heavy.

DETACHABLE HANDLES permit the operation of the pump by windmill or pump jack, without disconnecting the handle from the slide rod.

Another advantage of this detachable handle is that a weight can be hung on it to balance the weight of the plunger rod, relieving the windmill of that much load.

These detachable handles can be connected or disconnected in a second or two, the two parts of the handle interlocking securely when connected.

These pumps are particularly adapted for use on shallow wells in connection with cylinders of large diameter, discharging large volumes of water. They have **EXTRA LARGE SPOUTS** measuring full 2 inches in diameter. They may also be used on the deepest wells with cylinders of smaller diameter.

The globe shaped reservoir above the spout gives an attractive appearance to these pumps, and has the advantage of holding enough water, during rapid operation of pump to prevent water from splashing out around the rod.

CAPS are securely fastened to the standard by three strong hook bolts, which permit the handle to be placed in any desired position.

REMOVABLE CHILLED BOXES take the wear of slide rod at both the top and bottom of cap, and can be easily replaced when worn out.

SLIDE ROD is 1x1½-inch flat bar, threaded at the lower end for 7/16-inch rod and for ⅜-inch pipe to fit regular wood rod coupling.

STROKE is 6 inches.

PINS (large, forged steel) connect Cap, Rocker Arm, Fulcrum, Handle and Slide Rod, and are much better than the small bolts so commonly used.

No. 0 and No. 1 are tapped just below the spout for 2-inch pipe and may be bushed for 1¼ or 1½-inch pipe. No. 2 is regularly tapped for 2-inch pipe at the spout, but may be tapped for 2½ or 3-inch pipe at a point about 4 inches above the base. A small extra charge is made for 2½ or 3-inch tapping.

Any size of these pumps is suitable for wells of any depth.

Price, Fig. 612D, No. 0	each		7.95
" " 612D, " 1	"		8.35
" " 612D, " 2	"		8.80

In ordering, state number and figure of pump and size of tapping desired. Unless otherwise ordered, they will be sent tapped for 2-inch pipe.

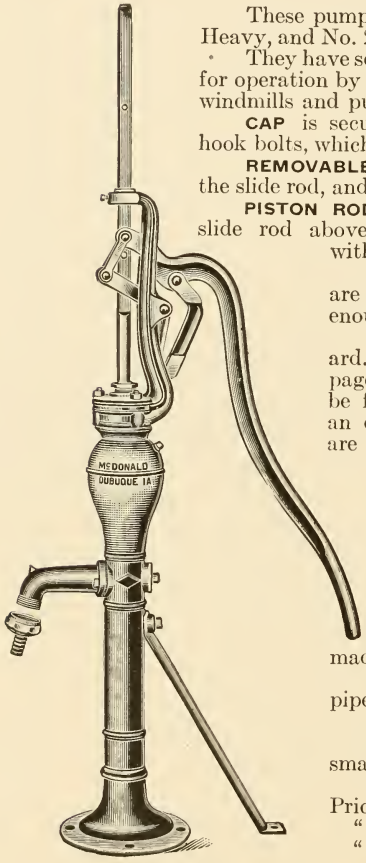
DIAMOND SPECIAL FORCE PUMPS

FOR HAND USE

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

FIG. 616

Patented March 12, 1907



These pumps are made in three sizes, No. 0 is Standard, No. 1 is Heavy, and No. 2 is Extra Heavy.

They have solid, or one-piece handles, and are particularly intended for operation by hand, though they can be used in connection with windmills and pump jacks.

CAP is securely fastened to the standard by means of three hook bolts, which permit the handle to be placed in any desired position.

REMOVABLE CHILLED BOX in top of cap, takes the wear of the slide rod, and is easily replaced when worn.

PISTON ROD is 1 1/16-inch polished steel, welded to the 1x1½-inch slide rod above, being much stronger than the two-piece rod with set screw coupling.

The **STUFFING BOX** and **BRASS STUFFING NUT** are made to fit the 1 1/16-inch piston rod, and are large enough to permit the entire rod to pass through.

Pump is shown with Plain Spout bolted to the standard. Any of the four spouts shown at the bottom of page will attach to the pump. The siphon spout will be furnished at the same price as the plain spout, but an extra charge is made for cock spouts. All spouts are furnished with a union connection for ¾-inch hose.

They are tapped in rear of spout for 1, 1¼, 1½ or 2-inch pipe, as desired, but are always sent tapped for 1-inch pipe unless order states otherwise.

These pumps are tapped just below the spout for 1¼, 1½ or 2-inch well pipe, as desired, but will always be sent tapped for 1¼-inch pipe unless otherwise stated in order. No. 2 can be furnished tapped for 2½ or 3-inch pipe at a point about 4 inches above the base, and a small extra charge is made for these sizes.

PISTON ROD is threaded for 7/16-inch rod and ⅜-inch pipe, to fit regular wood rod coupling.

STROKE is 6 inches.

STEEL PINS of large diameter are used instead of small bolts so commonly used.

These pumps will work on any depth of well.

Price, Fig. 616, No. 0, Plain Spout.....each		7.90
" " 616, " 1, " " ..... "		8.35
" " 616, " 2, " " ..... "		9.60

Add for Cock Spout, either Compression or Lever Handle, each 1.25.

In ordering, state number and figure of pump, kind of spout, and size of tapping desired. Unless otherwise ordered, they will be sent with Plain Spout, tapped for 1¼-inch well pipe and with 1-inch rear outlet.

BOLTED SPOUTS

PLAIN

SIPHON

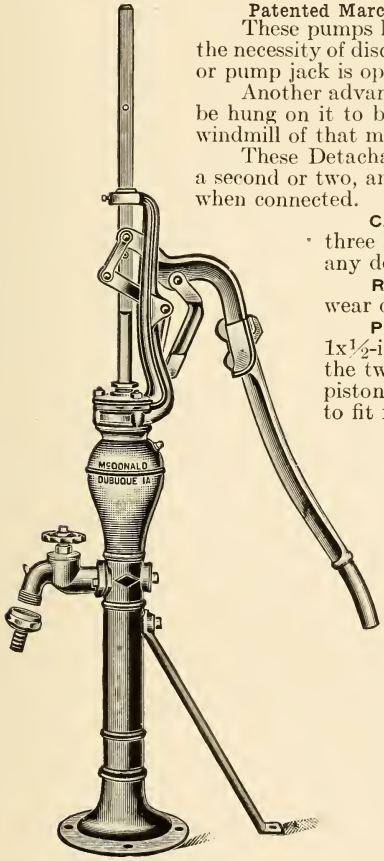
COMPRESSION COCK

LEVER HANDLE COCK

DIAMOND SPECIAL FORCE PUMPS

FOR WINDMILL, PUMP JACK OR HAND USE

FIG. 616D



Patented March 12, 1907, and July 31, 1900

These pumps have patented **DETACHABLE HANDLES,** which avoid the necessity of disconnecting the handle from slide rod when windmill or pump jack is operating the pump.

Another advantage of this Detachable Handle is that a weight can be hung on it to balance the weight of the plunger rod, relieving the windmill of that much load. (See page 755.)

These Detachable Handles can be connected and disconnected in a second or two, and the two parts of the handle are securely fastened when connected.

CAP is securely fastened to the standard by means of three hook bolts, which permit the handle to be placed in any desired position.

REMOVABLE CHILLED BOX, in top of cap, takes the wear of the slide rod, and is easily replaced when worn.

PISTON ROD is $1\frac{1}{16}$-inch polished steel, welded to the $1x1\frac{1}{2}$-inch flat slide rod above, being much stronger than the two-piece rod with set screw coupling. Lower end of piston rod is threaded for $\frac{7}{16}$-inch rod and for $\frac{3}{8}$-inch pipe to fit regular wood rod coupling.

The **STUFFING BOX** and **BRASS STUFFING NUT** are made to fit the $1\frac{1}{16}$-inch piston rod, and are large enough to permit the whole rod to pass through them.

The siphon spout will be furnished at the same price as the plain spout, but an extra charge is made for Cock Spouts. All spouts have a union connection for $\frac{3}{4}$-inch hose.

These pumps are tapped in rear of spout for 1, $1\frac{1}{4}$, $1\frac{1}{2}$ or 2-inch pipe, as desired, but are always sent tapped for 1-inch pipe unless order states otherwise.

They are tapped just below the spout for $1\frac{1}{4}$, $1\frac{1}{2}$ or 2-inch well pipe, as desired, but will always be sent tapped for $1\frac{1}{4}$-inch well pipe unless otherwise stated in order. No. 2 can be furnished tapped for $2\frac{1}{2}$ or 3-inch pipe at a point about 4 inches above the base, and a small extra charge is made for these sizes.

STROKE is 6 inches.

These pumps are suitable for wells of any depth.

Price, Fig. 616D, No. 0, Plain Spout, Standard	each		8.75
" " 616D, " 1 " "	Heavy	"	9.15
" " 616D, " 2 " "	Extra Heavy	"	10.40

Add for Cock Spout, either Compression or Lever Handle, each 1.25.

In ordering, state number and figure of pump, kind of spout, and size of tapping desired. Unless otherwise ordered, they will be sent with Plain Spout, tapped for $1\frac{1}{4}$-inch well pipe and with 1-inch rear outlet.

BOLTED SPOUTS

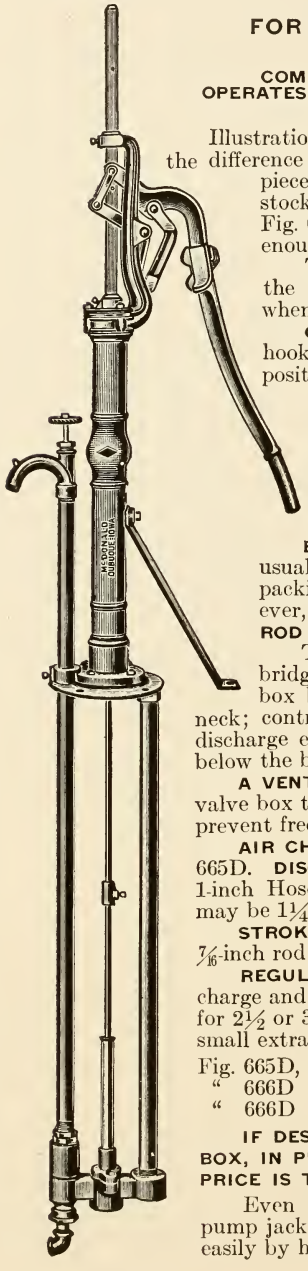
PLAIN

SIPHON

COMPRESSION COCK

LEVER HANDLE COCK

FIG. 665D
FIG 666D



DIAMOND SPECIAL UNDERGROUND VALVE FORCE PUMPS

FOR WINDMILL, PUMP JACK OR HAND USE

ANTI-FREEZING

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

Patented July 31, 1900, and March 12, 1907

Illustration shows Fig. 666D. Fig. 665D is very similar in appearance, the difference being that Fig. 665D has the stock and base cast in one piece and has a 1¼-inch Air Chamber Pipe, while 666D has the stock bolted to the base, and has a 1½-inch Air Chamber Pipe. Fig. 665D is not quite so heavy as Fig. 666D, but is strong enough for use in almost any well.

They have patented **DETACHABLE HANDLE,** which avoids the necessity of disconnecting the handle from the slide rod when the windmill or pump jack is operating the pump.

CAP is securely fastened to the standard by means of three hook bolts, which permit the handle to be placed in any desired position.

For **TUBULAR WELL WORK** they are regularly tapped for 2-inch pipe, and 2-inch plungers can be withdrawn through the bridge piece by removing the packing tube; but Fig. 666D can be tapped for 2½ or 3-inch pipe, when desired, and bridge piece then permits the withdrawal of corresponding size plungers by removal of packing tube.

BRASS PACKING TUBE on the bridge piece, in place of the usual stuffing box, prevents leakage and annoyance of replacing packing so frequently around the piston rod. If preferred, however, we can furnish these pumps with **BRASS-COVERED PISTON ROD** and **BRASS STUFFING BOX** at the same price.

The **UNDERGROUND VALVE** is located just above the bridge piece and the **BRASS OPERATING SCREW** is in the valve box below the freezing line and not at the top near the goose neck; controlled by the valve wheel at the top of the gooseneck to discharge either through the spout or through the underground pipe below the bridge piece.

A VENT HOLE is provided in the discharge pipe just above the valve box to drain the discharge pipe when pump is at rest, and thus prevent freezing.

AIR CHAMBER PIPE is 1½-inch on Fig. 666D and 1¼-inch on 665D. **DISCHARGE PIPE** is 1¼ inch with gooseneck threaded for 1-inch Hose Coupling. **UNDERGROUND DISCHARGE** is 1 inch, but may be 1¼ inch if desired.

STROKE is 6 inches. Lower end of Piston Rod is threaded for 7/16-inch rod and ⅜-inch pipe to fit regular wood rod coupling.

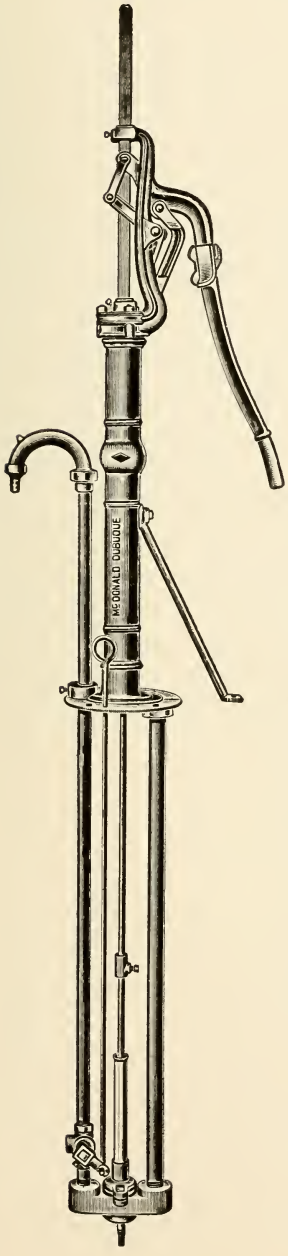
REGULARLY FITTED for 2-inch suction, 1-inch gooseneck discharge and 1-inch underground discharge. When Fig. 666D is desired for 2½ or 3-inch pipe, it is necessary to state so on the order and a small extra charge is made for tapping those sizes.

Fig. 665D, fitted for 2-inch Well Pipe	each	15.80
" 666D " " 2 " " "	"	17.50
" 666D " " 2½ or 3-inch Well Pipe	"	18.10

IF DESIRED WITH BRASS COVERED PISTON ROD AND STUFFING BOX, IN PLACE OF BRASS PACKING TUBE, STATE SO ON ORDER; PRICE IS THE SAME.

Even though these pumps are operated mostly by windmill or pump jack, it will be found very desireable to be able to operate them easily by hand.

DIAMOND SPECIAL UNDERGROUND FORCE PUMPS



FOR WINDMILL, PUMP JACK OR HAND USE

ANTI-FREEZING
COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER
PUMPS ON HALF THE WIND

FIG. 670D

Patented March 12, 1907 and July 31, 1900

Illustration shows our Fig. 670 D. Underground Force Pump with our easy working head, which requires only one-half the power of an ordinary 6-in. stroke pump to operate it.

It has patented **DETACHABLE HANDLE,** which avoids the necessity of disconnecting the handle from slide rod when the windmill or pump jack is operating the pump.

Another advantage of the Detachable Handle is that a weight can be hung on it to balance the weight of the plunger rod, relieving the windmill of that much load.

CAP is securely fastened to the standard by means of three hook bolts, which permit the handle to be placed in any desired position.

REMOVABLE CHILLED BOXES, in top and bottom of cap, take the wear of the slide rod, and can easily be replaced when worn.

This pump is suitable for wells of any reasonable depth and especially for Tubular Wells. For Tubular Well work, it is tapped for 2-in. pipe, and 2-in. plunger can be withdrawn through the bridge piece by removing the packing tube.

BRASS PACKING TUBE on the bridge piece, in place of the usual stuffing box, prevents leakage and annoyance of replacing packing around the piston rod. If preferred, however, we can furnish this pump with Brass-Covered Piston Rod and Brass Stuffing Box at the same price.

A BRASS THREE-WAY COCK, shown above the bridge piece in the discharge pipe, is operated by a rod extending up through the base of the pump, so that water can be discharged through the spout, or through the side opening of the Three-Way Cock as desired.

AIR CHAMBER PIPE is 1¼ in. **DISCHARGE PIPE** is 1 in., with a cast swivel gooseneck at the top, and a hose connection for ¾-in. hose. Underground Discharge is 1 in. from the side opening of the Three-Way Cock; it can be furnished with 1¼-in. Three-Way Cock on special order.

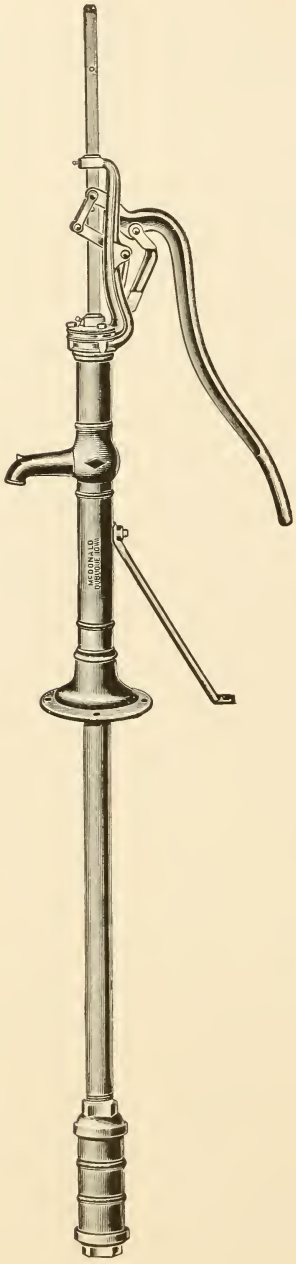
STROKE is 6 inches. Lower end of Piston Rod is threaded for 7/16-in. rod and ⅜-in. pipe to fit regular wood rod coupling.

REGULARLY FITTED for 2-in. Well Pipe, 1-in. gooseneck, and 1-in. underground discharge. If wanted for smaller than 2-in. well pipe, bushing can be used to reduce to size desired.

Price, Fig. 670 D., for 2-in. Well Pipe.....each **16.25**

IF DESIRED WITH BRASS-COVERED PISTON ROD AND STUFFING BOX IN PLACE OF BRASS PACKING TUBE, STATE SO ON ORDER; PRICE IS THE SAME.

DIAMOND SPECIAL SET-LENGTH LIFT PUMPS



STRONG SOLID STOCK FOR HAND USE

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR

OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

FIG. 685.

Patented March 12, 1907

A strong Anti-freezing Set-Length Pump, with our Patented Head and solid stock. Intended for use on wells not over 30 feet deep, but will work on wells up to 75 or 100 feet by lowering the cylinder a corresponding distance below the platform.

STOCK is strong and is tapped for 1¼-inch pipe at a point just below the spout. **A VENT HOLE** drilled in the pipe above the cylinder, drains the water down to the cylinder to prevent freezing.

PINS, connecting Cap, Fulcrum, Rocker Arm, Handle and Slide Rod are large diameter, forged steel, and better than the small bolts so commonly used on pumps.

CAP is fastened to the standard by three strong hook bolts, which permit the handle to be placed in any desired position.

REMOVABLE CHILLED BOXES, in top and bottom of cap, take the wear of the slide rod and are easily replaced when worn.

SET-LENGTH regularly measures 4 feet from base to bottom of cylinder, but longer set-lengths can be furnished at an extra price per foot. It is regularly furnished with black pipe, but can be sent with galvanized pipe if so ordered at an extra charge. No. 6 is made with either 1¼ or 1½-inch pipe set-length.

CYLINDERS are our regular 10-inch cylinders, with high-grade plunger and valve leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

STROKE is 6 inches.

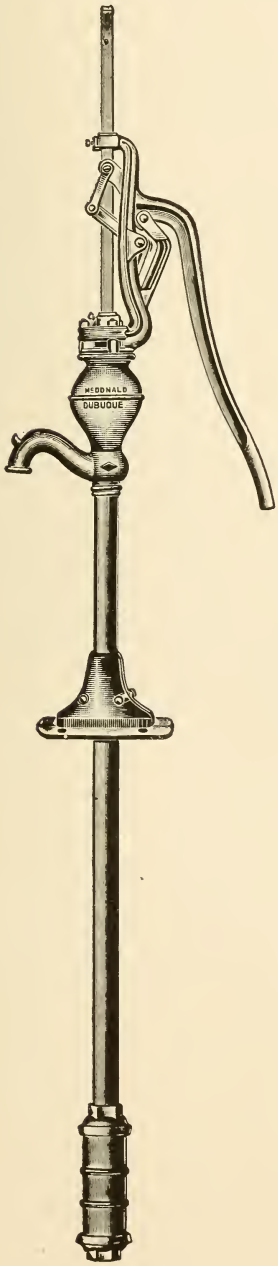
REGULARLY FITTED for 1¼-inch pipe but No. 6 is also fitted for 1½-inch pipe as listed below.

	Size Cyl. Inches	Size Pipe Inches	PRICE Iron	Brass-Lined	Brass Body
Fig. 685, No. 4	3 x10	1¼	**9.60**	**11.30**	**11.70**
" 685, " 5	3¼x10	1¼	**10.25**	**11.70**	**12.10**
" 685, " 6	3½x10	1¼	**10.70**	**12.10**	**12.50**
" 685, " 6	3½x10	1½	**10.95**	**12.35**	**12.75**

These pumps can be operated with much less effort than ordinary pumps. With equal size cylinders, they only require half the labor. When No. 6 is used, it will furnish 35% more water than an ordinary pump with 3x10-inch cylinder, and do it with 25% less labor.

We do not advise the use of more than 20 feet of pipe below the cylinder.

DIAMOND SPECIAL SET-LENGTH LIFT PUMPS



SIPHON SPOUT—ADJUSTABLE BASE

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR

OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

FIG. 602

Patented March 12, 1907

This shows a strong Anti-Freezing Set-Length Pump with our Patented Head, Siphon Spout and Adjustable Base. It is intended for use on wells not over 30 feet deep, but will operate on deeper wells by lowering the cylinder a corresponding distance below the platform.

It has a **GLOBE RESERVOIR** above the spout, which prevents water raising too high and spurting out of the cup when the pump is operated rapidly. Siphon Spout is preferred by many as there is less drip from the spout. Fitted with 1½-inch pipe which screws into the body of the pump just below the spout. **A VENT HOLE** drilled in the pipe above the cylinder drains the water down to the cylinder to prevent freezing.

PINS, connecting Cap, Rocker Arm, Fulcrum, Handle and Slide Rod are large diameter, forged steel, and better than the small bolts so commonly used on pumps.

ADJUSTABLE SPLIT GRIP BASE is fastened with strong bolts, firmly gripping the pipe, and, being oval, provides ample bearing on the platform.

CAP is fastened to the standard by three strong hook bolts which permit the handle to be placed in any position.

REMOVABLE CHILLED BOXES take the wear of the slide rod at both top and bottom of cap and are easily replaced when worn.

SET-LENGTH regularly measures four feet from base to bottom of cylinder, but longer set-lengths can be furnished at an extra charge per foot. It is made of 1½-inch black pipe, but can be made of 1½-inch Galvanized if so ordered, at an extra charge.

CYLINDERS are 3½x10, fitted for 1½-inch pipe, with high-grade plunger and valve leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

STROKE is 6 inches.

	Size Cyl. Inches	Size Pipe Inches	Price		
			Iron	Brass-Lined	Brass Body
Fig. 602 No. 6	3½x10	1½	9.95	11.45	11.85

THIS PUMP, WITH ITS 3½ X 10 CYLINDER, WILL FURNISH 35% MORE WATER THAN AN ORDINARY SET-LENGTH WITH 3 X 10 CYLINDER AND WITH 25% LESS POWER OR LABOR.

We do not advise the use of more than 20 feet of pipe below cylinder.

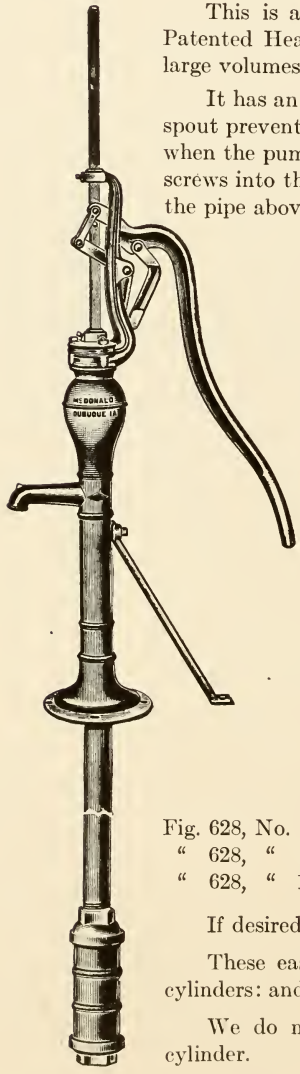
DIAMOND SPECIAL SET-LENGTH LIFT PUMPS

HEAVY SOLID STOCK FOR HAND USE

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

FIG. 628

Patented March 12, 1907



This is a strong, heavy, anti-freezing Set-Length Pump with our Patented Head, intended for use on wells not over 30 feet deep where large volumes of water are desired.

It has an **EXTRA LARGE SPOUT,** and the globe reservoir above the spout prevents the water raising high enough to spurt out of the cap when the pump is rapidly operated. It is fitted with 2-inch pipe, which screws into the standard close below the spout. **A VENT HOLE** drilled in the pipe above the cylinder, drains the water down to prevent freezing.

CAP is fastened to the standard by three strong hook bolts, which permit the handle to be placed in any position.

REMOVABLE CHILLED BOXES take the wear of the slide rod at both the top and bottom of cap, and are easily replaced when worn.

PINS, connecting Cap, Rocker Arm, Fulcrum, Handle and Slide Rod are large diameter, forged steel, and much superior to the small bolts commonly used.

SET-LENGTH measures 4 feet from base to bottom of cylinder, but longer set-lengths can be furnished at an extra charge per foot.

The **CYLINDERS** are our regular 10-inch cylinders, fitted for 2-inch pipe, with high-grade valve and plunger leathers. Always sent with Iron Cylinders, unless Brass Lined or Brass Body are specified.

STROKE is 6 inches.

	Size Cylinder Inches	Size Pipe Inches	PRICE Iron	Brass Lined	Brass Body
Fig. 628, No. 8	4 x 10	2	**13.15**	**15.85**	**17.35**
" 628, " 9	4½ x 10	2	**14.30**	**18.75**	**20.50**
" 628, " 10	5 x 10	2	**15.65**	**21.50**	**23.50**

If desired with Detachable Handle, add to list, 85c.

These easy working pumps give very good results with the large cylinders: and throw a large volume of water.

We do not advise the use of more than 20 feet of pipe below cylinder.

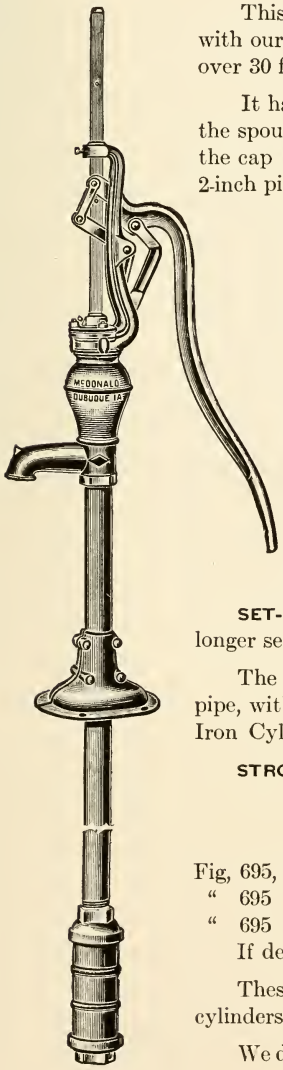
DIAMOND SPECIAL SET-LENGTH LIFT PUMPS

HEAVY **ADJUSTABLE BASE** **FOR HAND USE**

FIG. 695

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER; PUMPS ON HALF THE WIND

Patented March 12, 1907



This shows our large and heavy Anti-Freezing Set-Length Pump with our patented head. This pump is intended for use on wells not over 30 feet deep, where large volumes of water are desired.

It has an **EXTRA LARGE SPOUT,** and the globe reservoir above the spout prevents the water raising sufficiently high to spurt out of the cap when the pump is being rapidly operated. It is fitted with 2-inch pipe, which screws into the body of pump under the spout. **A VENT HOLE** drilled in the pipe above the cylinder, drains the water down to the cylinder to prevent freezing.

PINS, connecting Cap, Rocker Arm, Fulcrum, Handle and Slide Rod are large diameter, forged steel and much superior to the small bolts commonly used.

It has an oval, **ADJUSTABLE SPLIT GRIP BASE,** providing large gripping surface, fastened with four strong bolts, and giving good bearing on the platform.

CAP is fastened to the standard by three strong hook bolts which permit the handle to be placed in any position.

REMOVABLE CHILLED BOXES take the wear of the slide rod at both top and bottom of cap, and are easily replaced when worn.

SET-LENGTH measures 4 feet from base to bottom of cylinder, but longer set-lengths can be furnished at an extra charge per foot.

The **CYLINDERS** are our regular 10-inch cylinders, fitted for 2-inch pipe, with high-grade plunger and valve leathers. Always sent with Iron Cylinders, unless Brass-Lined or Brass Body are specified.

STROKE is 6 inches.

	Size Cylinder Inches	Size Pipe Inches	Price		
			Iron	Brass-Lined	Brass Body
Fig, 695, No. 8	4 x10	2	**11.75**	**14.25**	**15.50**
" 695 " 9	4½ x10	2	**12.85**	**17.10**	**18.60**
" 695 " 10	5 x10	2	**14.25**	**19.80**	**21.50**

If desired with Detachable Handle, add to list .85.

These easy working pumps give very good results with the large cylinders, and throw a large volume of water.

We do not advise the use of more than 20 feet of pipe below cylinder.

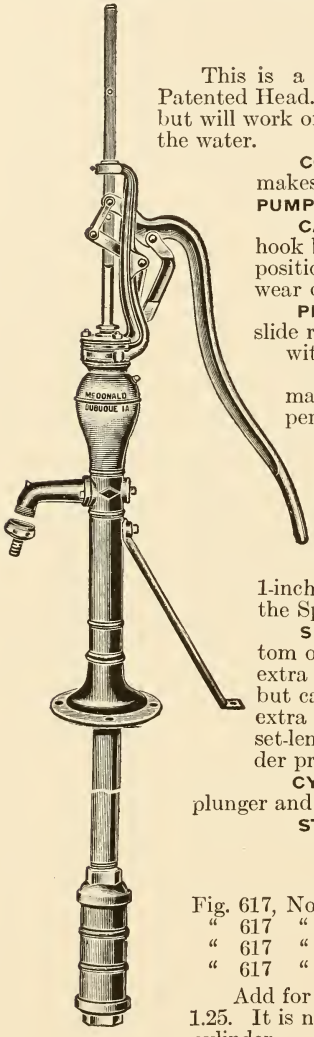
DIAMOND SPECIAL SET-LENGTH FORCE PUMPS

HEAVY STRONG SOLID PISTON ROD

FIG. 617

COMPOUND LEVERAGE SAVES ONE-HALF THE LABOR
OPERATES WITH HALF THE POWER
PUMPS ON HALF THE WIND

Patented March 13, 1907



This is a strong Anti-Freezing Set-Length Force Pump with our Patented Head. It is intended for use on wells not over 30 feet deep, but will work on wells up to 100 feet deep by lowering the Cylinder to the water.

COMPOUND LEVERAGE on our Diamond Special Pumps makes them **MUCH EASIER TO OPERATE THAN THE ORDINARY PUMPS.**

CAP is securely fastened to the standard by means of three hook bolts which permit the handle to be placed in any desired position. **REMOVABLE CHILLED BOX** in top of Cap, takes the wear of the slide rod.

PISTON ROD is 1 1/16-inch polished steel, welded to 1x1½-inch slide rod above, being much stronger than the two-piece rod with set screw coupling.

The **STUFFING BOX** and **BRASS STUFFING NUT** are made to fit the 1 1/16-inch piston rod, and are large enough to permit the entire rod to pass through.

Pump is shown with plain Spout bolted to the standard. Any of the four spouts shown below will attach to the pump, but an extra charge is made for the Cock Spouts. All Spouts are furnished with a union connection for ¾-inch hose.

Pump is tapped in the rear of spout for 1, 1¼, 1½ or 2-inch pipe, as desired, but are always sent tapped for 1-inch pipe unless otherwise ordered. It is tapped just below the Spout for 1¼ or 1½-inch pipe as listed below.

SET-LENGTH regularly measures 4 feet from base to bottom of cylinder, but longer set-lengths can be furnished at an extra price per foot. It is regularly sent with black set-length, but can be furnished with galvanized pipe, if so ordered, at an extra charge. No. 6 is made with either 1¼ or 1½-inch pipe set-length. **A VENT HOLE** drilled in the pipe above the cylinder prevents freezing.

CYLINDERS are our regular 10-inch cylinders with high-grade plunger and valve leathers.

STROKE is 6 inches.

	Size Cylinder Inches	Size of Pipe Inches	PRICE, EACH Iron	Brass Lined	Brass Body
Fig. 617, No. 4	3 x10	1¼	**12.10**	**13.80**	**14.20**
" 617 " 5	3¼x10	1¼	**12.75**	**14.20**	**14.60**
" 617 " 6	3½x10	1¼	**13.20**	**14.60**	**15.00**
" 617 " 6	3½x10	1½	**13.45**	**14.85**	**15.25**

Add for Cock Spout, either Compression or Lever Handle, each 1.25. It is not advisable to use more than 20 feet of pipe below the cylinder.

BOLTED SPOUTS

PLAIN

SIPHON

COMPRESSION COCK

LEVER HANDLE COCK

HOUSE FORCE PUMPS

FIG. 34

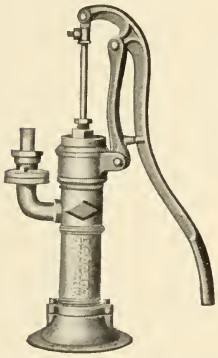
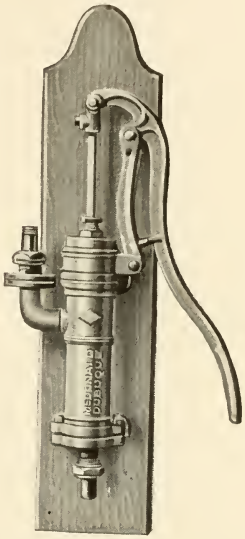


FIG. 35



These are indoor Force Pumps, usually placed in the kitchen near the sink to draw water from cistern or shallow well and force it into a tank or reservoir above.

FIG. 34 usually rests on a small shelf or stand at one end of the sink, so that the flange of the pump is on a level with the rim of the sink.

FIG. 35, being bolted to a plank, is fastened to a side wall.

All parts of these pumps of corresponding number or size will interchange, except the cylinders. They have revolving bearers, so that the handle may be placed in any position. The discharge is fitted with a brass ferrule threaded for iron pipe, or suitable for connection with lead pipe. Brass valve seat is bolted between cylinder and base, or bottom cap, and this seat carries a male iron pipe thread for suction connection.

The piston rod is brass-covered, connected to the handle of the pump by a substantial set screw coupling. Stuffing nut is cast brass.

Made in four sizes, either iron or brass-lined, as listed below. Any size of these pumps can be fitted for 1¼ or 1½-inch suction if so desired.

Fig.	No.	Size Cylinder Inches	Size Suction Inches	Size Discharge Inches	Price Iron	Price Brass-Lined
34	1	2¼	1	1	**8.75**	**11.00**
34	2	2½	1	1	**9.50**	**12.00**
34	3	2¾	1¼	1	**10.25**	**13.00**
34	4	3	1¼	1	**11.00**	**14.00**
35	1	2¼	1	1	**9.75**	**12.00**
35	2	2½	1	1	**10.50**	**13.00**
35	3	2¾	1¼	1	**11.25**	**14.00**
35	4	3	1¼	1	**12.00**	**15.00**

Fig. 35 without Plank lists, 1.00 less.

Never use on a vertical suction of over 25 feet, and we recommend 20 feet as a more practical limit.

HOUSE FORCE PUMPS

FIG. 36

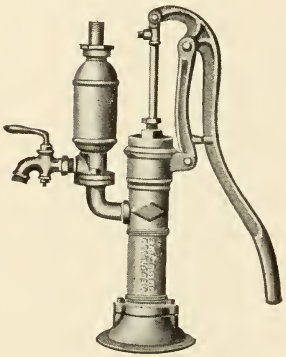
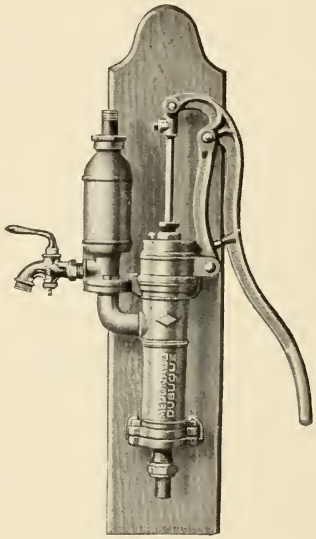


FIG. 37



These are Indoor Force Pumps for use at the kitchen sink to furnish water from cisterns or shallow wells, either at the pump or to an elevated tank or reservoir.

The discharge is at top of the air chamber, and is fitted with a brass ferrule threaded for iron pipe connection. The cock spout is a finished Lever Handle Hose Bibb screwed into the side of the air chamber.

By this arrangement water can be drawn at the pump, or by closing the cock spout it is forced to storage tank above. Always sent with cock unless order states without cock.

FIG. 36 is usually put on a shelf even with the rim of the sink.

FIG. 37, being mounted on a plank, can be fastened to a side wall.

All parts of these pumps of corresponding size or number will interchange, except the cylinders.

They have revolving bearers, so that handle can be placed in any position. Air chamber can be turned on its supporting flange so that the cock spout will point as desired.

Brass Valve Seat is bolted between cylinder and base, or bottom cap, and has male iron pipe thread for suction. Any size can be fitted with suction as large as 1½-inch if desired.

Stuffing nut is cast brass. Piston rod is brass-covered, connected to the handle by set screw coupling. All brass parts are nicely polished.

These pumps are substantial and strong in all parts, and made in four sizes, either iron or brass-lined.

Fig.	No.	Size Cylinder Inches	Size Suction Inches	Size Discharge Inches	Size Cock Inches	Price With Cock Iron	Price With Cock B. L.	Price Without Cock Iron	Price Without Cock B. L.
36	1	2¼	1	1	¾	11.25	13.50	9.25	11.50
36	2	2½	1	1	¾	12.50	15.00	10.00	12.50
36	3	2¾	1¼	1	¾	13.50	16.00	11.00	13.50
36	4	3	1¼	1	1	14.50	17.50	12.00	15.00
37	1	2¼	1	1	¾	12.25	14.50	10.25	12.50
37	2	2½	1	1	¾	13.50	16.00	11.00	13.50
37	3	2¾	1¼	1	¾	14.50	17.00	12.00	14.50
37	4	3	1¼	1	1	15.50	18.50	13.00	16.00

Fig. 37 without Plank lists, 1.00 less.

Never use on a vertical suction of over 25 feet, and we recommend 20 feet as a more practical limit.

HOUSE FORCE PUMPS

FIG. 38

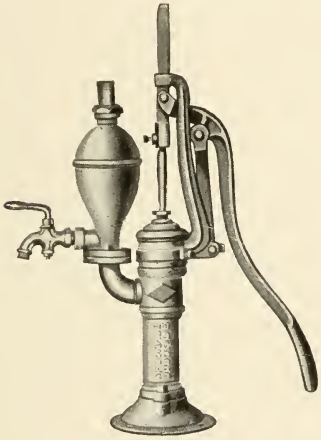
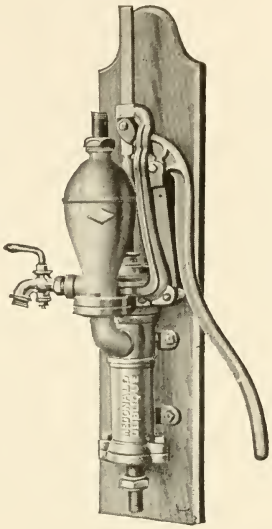


FIG. 39



These Indoor House Force Pumps have windmill type of head, but the rod is not long enough to attach to windmill or pump jack unless especially ordered. In warmer climates, this type of pump is used outdoors in connection with windmills and other power. As the cylinder is in the pump they are only adapted for use on cisterns and shallow wells not over 25 feet to the water, though we recommend 20 feet as a more practical limit.

The discharge is at the top of air chamber, and is fitted with a brass ferrule threaded for 1-inch iron pipe (1¼-inch will be furnished if desired). Cock spout is a finished lever handle brass hose bibb, screwed into the side of the air chamber. By this arrangement water can be drawn at the pump, or by closing the cock it can be forced up into a storage tank. Always sent with cock spout unless order states to the contrary.

All parts of these pumps of corresponding size and number will interchange, with the exception of the cylinder and base or bottom cap. They have revolving bearers, so that the handle may be placed in any position desired. Air chamber can be turned on its supporting flange, so that cock spout will point as desired.

Brass valve seat is bolted between cylinder and base, and has male iron pipe threaded for connection to suction pipe. Any size can be fitted for 1½-inch suction if desired.

Stuffing nut is cast brass. Brass covered piston rod is connected to flat slide rod by the usual set screw coupling. All brass parts are heavily polished.

These pumps are strong in every part, nicely painted, and attractive in appearance. They are made in two sizes and either iron or brass lined. If wanted for use with power, be sure to state so in order.

Fig.	No.	Size Cylinder Inches	Size Suction Inches	Size Discharge Inches	Size Cock Inches	Price With Cock Iron	Price With Cock B. L.	Price Without Cock Iron	Price Without Cock B. L.
38	1	2¼	1	1	¾	12.25	14.50	10.25	12.50
38	2	2½	1	1	¾	13.50	16.00	11.00	13.50
38	4	3	1¼	1	1	15.50	18.50	13.00	16.00
39	1	2¼	1	1	¾	13.25	15.50	11.25	13.50
39	2	2½	1	1	¾	14.50	17.00	12.00	14.50
39	4	3	1¼	1	1	16.50	19.50	14.00	17.00

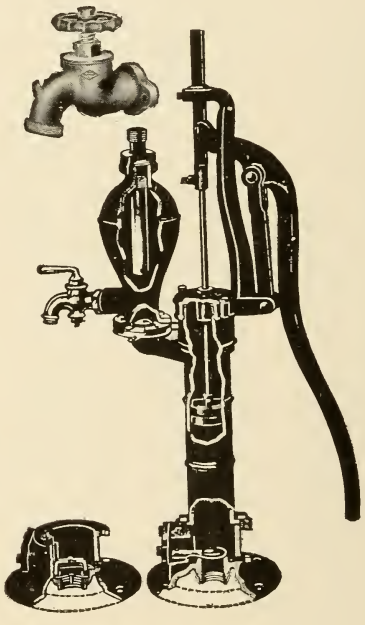
Fig. 39 without Plank lists 1.00 less.

Never use on a vertical suction of over 25 feet, and we recommend 20 feet as a more practical limit.

WARM CLIMATE FORCE PUMP

FOR HAND, WINDMILL OR PUMP JACK

FIG. 138



Accompanying cut shows our new Force Pump for shallow wells up to 25 feet deep. As the cylinder, plunger, and check valve are above the platform, these pumps are for use indoors in cold climates, or outdoors where freezing weather is not common.

BRASS DRAIN PLUGS in base and air chamber permit the draining off of all water in cylinder and air chamber to prevent damage by freezing.

The **CYLINDER** forms part of the standard, and is bolted to the base by 4 strong bolts. Furnished either polished iron or brass lined.

The **BASE** is heavy and strong. The valve is attached to the hand-hole plate on the side of base —so removal of the hand-hole plate removes the valve when necessary for repairs. This is a very desirable feature, as the pump can be repaired without disturbing the pipe connection, and only a small monkey wrench is needed.

When so desired, we furnish this pump with a brass and rubber poppet check valve, working on a brass valve seat, at a small extra charge. See sectional cut.

AIR CHAMBER bolts to discharge arm of pump, and the cock spout can be turned in any direction. Top discharge of air chamber is a union connection, threaded for iron pipe. A leather check valve between air chamber and pump keeps the tank pressure off the plunger and check valve. A tube screwed into top of air chamber from below, prevents air escaping from air chamber when pumping.

COCK SPOUT is either a 1¼-inch brass and iron compression cock with union connection for ¾-inch hose, or a 1-inch brass lever handle hose bibb, or a 1-inch brass compression hose bibb. Unless otherwise ordered, the 1¼-inch brass and iron compression cock spout will be sent with the pump. See separate cut of this cock. **CAP** is fastened to the cylinder by hook bolts, which hold it securely in any desired position. It is long enough to permit 12-inch power stroke. **PISTON ROD IS BRASS COVERED. STUFFING BOX** is brass. **STROKES** are 6½-inch hand stroke and 12-inch power. The 12-inch power stroke particularly adapts this pump for use in connection with windmills and pump jacks, and is a longer stroke than is commonly furnished.

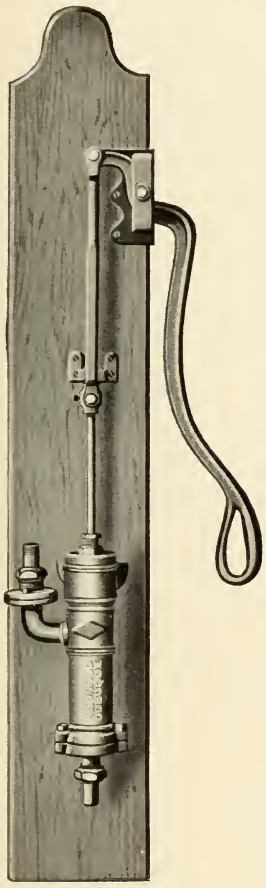
All parts of this pump are strong and heavy, and it is built for real service. It is suitable for pressures up to 50 pounds or elevations up to 110 feet. This pump was especially designed for California trade, but all the warmer parts of the United States, Mexico and tropical climates can use it.

No.	Diameter Cylinder Inches	Suction I. P. Inches	Discharges, Inches Top of Air Chamber I. P.	Discharges, Inches Cock Spout Hose Coupling	Stroke Inches	Price Iron	Price Brass Lined
2	2½	1¼	1¼	1	6½	16.50	19.00
4	3	1½	1¼	1	Hand &	17.00	19.50
6	3½	1½	1½	1	12	24.00	27.50
8	4	2	1½	1	Power	25.50	30.50

If wanted with brass and rubber poppet check valve add 1.50 to list above. Any size of these pumps can be furnished for 2-inch suction pipe, and 1½-inch discharge at top of air chamber.

HOUSE FORCE PUMPS ON PLANK

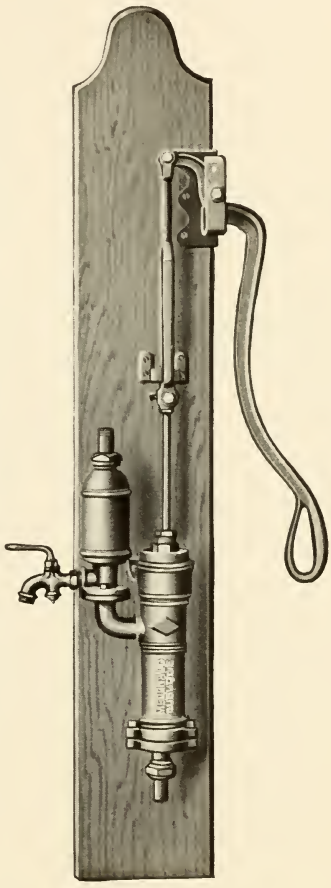
FIG. 40



These pumps are the same, except that Fig. 41 has an Air Chamber with side outlet for use of a Hose Bibb as discharge at the pump.

They are bolted to the plank, which can be fastened to wall or post. All parts are nicely painted, and Bolt Heads and Piston Rods are Brass. These pumps are generally used to force water from shallow wells or cisterns to a tank or reservoir above. Brass Discharge and Suction Ferrules are suitable for use with lead pipe, and are threaded for use with iron pipe. These Pumps are made with either Iron or Brass Lined Cylinders, as listed below, and the Brass Lined Cylinder is recommended by us as the better. Brass Covered Piston Rod is connected to the pitman by a set screw coupling, and operates in a Bracket Guide. Stuffing Nut is Brass. Suction can be for 1½-inch pipe, if desired. Handles are long and strong, and these pumps operate very easily.

FIG. 41



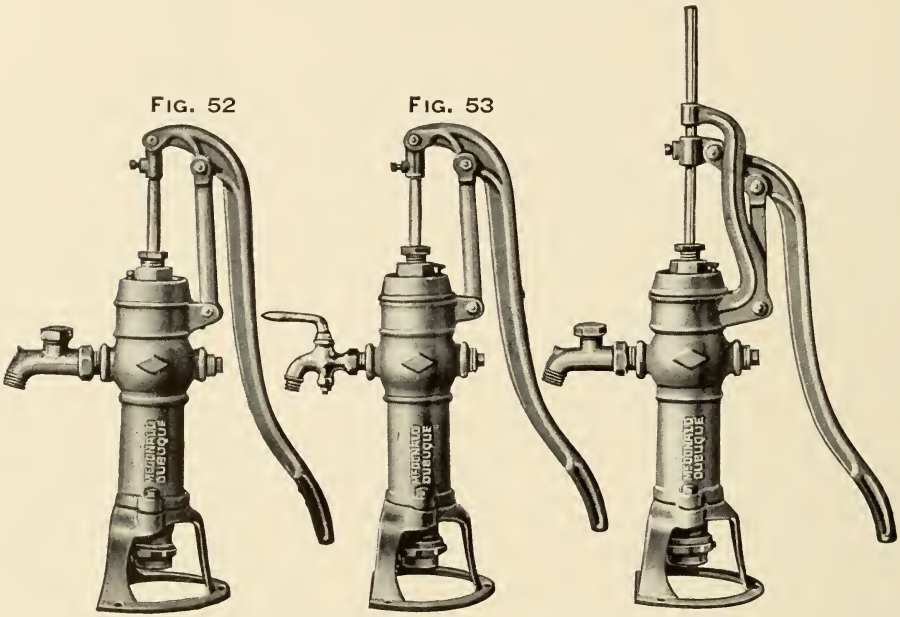
	Size Cylinder Inches	Size Suction Inches	Top of Air Chamber Iron Pipe Inches	Size Cock Inches	Price Without Cock Iron	Price Without Cock B. L.	Price With Cock Iron	Price With Cock B. L.
Fig. 40, No. 1	2¼	1	1	..	14.25	16.50	.....	.....
" 40, " 2	2½	1	1	..	15.00	16.50	.....	.....
" 40, " 3	2¾	1¼	1	..	15.75	18.50	.....	.....
" 40, " 4	3	1¼	1	..	16.50	.....	.....	.....
" 41, " 1	2¼	1	1	¾	16.25	18.50	18.25	20.75
" 41, " 2	2½	1	1	¾	17.00	19.50	19.50	22.00
" 41, " 3	2¾	1¼	1	¾	17.75	20.50	20.25	22.75
" 41, " 4	3	1¼	1	1	18.50	21.50	22.00	25.00

Never used on a vertical suction of over 25 feet, and we recommend 20 feet as a more practical limit.

HOUSE FORCE PUMPS

FIG. 54

FIG. 52 FIG. 53



These are good, serviceable House Force Pumps for use on the kitchen sink and for forcing water to an elevated tank.

FIG. 52 has an iron spout threaded for 1-inch Iron Pipe and with thread for 1-inch Hose Coupling at the discharge end.

FIG. 53 is the same as Fig. 52, but is equipped with a ¾-inch finished Brass Lever Handle Hose Bibb instead of the Iron Spout.

FIG. 54 is the same as Fig. 52 and Fig. 53, except that it has the windmill style of cap and handle.

CAP has **BRASS PRIMING PLUG. BACK OUTLET** threaded for 1-inch Iron Pipe. Handle can be placed in any position. **PISTON ROD** is ⅝-inch brass-covered.

THE BASES have Brass Valve Seats. Bottom Nut is threaded for 1¼-inch suction, but can be furnished for 1, 1½, or 2-inch suction.

These Pumps are made in two sizes, and either Iron, Brass-Lined or Brass Body Cylinders. The last is furnished Polished or Nickel-Plated; when **NICKEL-PLATED CYLINDER** is ordered, the **BRASS BODY, BRASS PISTON ROD, BRASS STUFFING NUT** and **BRASS COCK** are **HIGHLY POLISHED** and **NICKEL-PLATED,** the iron parts of the Pump being neatly painted blue, making a most attractive pump.

IN ORDERING, state Figure of Pump, Diameter and kind of Cylinder.

Fig.	No.	Size Cylinder Inches	Iron	Brass-Lined	Polished Brass	Nickel-Plated Brass
52	2	2½	**5.75**	**6.75**	**7.50**	**8.00**
52	4	3	**6.00**	**7.00**	**7.75**	**8.25**
53	2	2½	**7.75**	**8.75**	**9.50**	**10.00**
53	4	3	**8.00**	**9.00**	**9.75**	**10.25**
54 Iron Sp.	2	2½	**6.25**	**7.25**	**8.00**	**8.50**
54 " "	4	3	**6.50**	**7.50**	**8.25**	**8.75**
54 Cock "	2	2½	**8.25**	**9.25**	**10.00**	**10.50**
54 " "	4	3	**8.50**	**9.50**	**10.25**	**10.75**

With 1-inch Cock Spout in place of ¾-in. Cock Spout, add to list, 1.00.

BRACKET HOUSE FORCE PUMPS

FIG. 74, IRON SPOUT

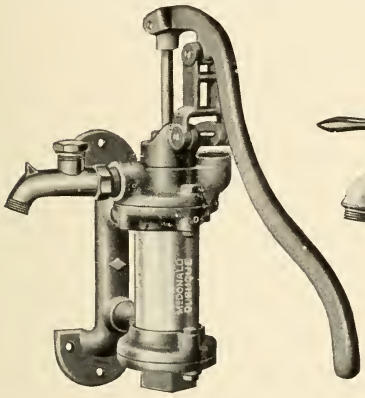


FIG. 74, COCK SPOUT

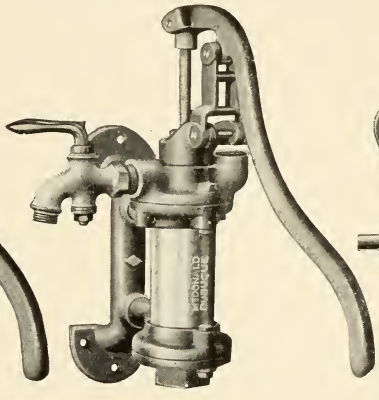


FIG. 513

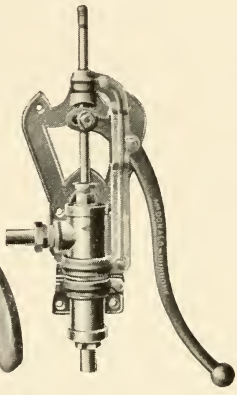


FIG. 74, Bracket House Force Pumps, as shown above, have Brass Cylinders and Strong Brackets for fastening to the wall at either end or side of sink. **BRACKETS** are attached to the top and bottom Cylinder ends by strong bolts. **SPOUTS** can be turned in any direction. **CAP RING,** to which fulcrum and handle are connected, revolves so handle can be used in any position and be swung back out of the way when not in use. **PISTON ROD** is solid brass. **CYLINDER** is Heavy Seamless Brass Tubing, screwed into iron flanged ends. **LOWER IRON FLANGE** has the Valve Seat and a Trip Valve to drain the pump. **FIG. 74, IRON SPOUT,** has an Iron Spout screwed into the top of pump, with a hose thread on discharge end for 1-inch Hose Coupling. The Cap, shown on the top of the Iron Spout, is to be screwed on to the end of the spout when water is forced through top discharge of the pump. **FIG. 74, COCK SPOUT,** has a Brass ¾-inch Lever Handle Hose Bibb, screwed into the top of pump, and is more convenient when water is to be forced out of top discharge of pump. These pumps have a 1-inch iron pipe connection at the top to which pipe can be attached, so that water can be forced to any desired point. Furnished with either **POLISHED BRASS** or **NICKEL-PLATED BRASS CYLINDERS, PISTON RODS AND COCKS.** Nickel-Plated Cylinders, Piston Rods and Cocks are more attractive and easier to keep clean than polished brass. **SUCTION AND DISCHARGE** are for 1-inch iron pipe. **STROKE** is 4 inches. **DIAMETER** of Cylinders is 2½ inches. Tapped for 1-inch pipe.

FIG. 513 Brass Force Pump is used quite extensively in cities where water pressure is not sufficient to force water to upper floors of buildings. Cap and Fulcrum revolves about the Cylinder, so that handle can be used in any position and be swung back out of the way when not in use. Cylinder, Caps, Piston Rod, Valves and Plunger are Brass, highly polished. Outlet of the pump is threaded 1-inch iron pipe and fitted with a brass ferrule and union nut; ferrule can be bent or straight for lead pipe, or for ¾-inch iron pipe. Suction is either lead pipe or 1-inch iron pipe. Cylinder is 2 inches in diameter.

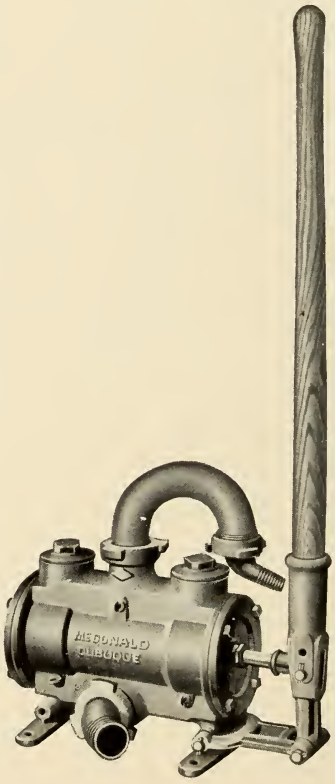
	PRICE	
	Polished Brass	Nickel-plated Brass
Fig. 74, Iron Spout Pump	8.00	8.50
" 74, Cock " "	10.00	10.50
" 513	10.00	....

Never use on a vertical suction of over 25 feet, and we recommend 20 feet as a more practical limit.

DOUBLE-ACTING TANK PUMP

5-INCH CYLINDER 5-INCH STROKE

FIG. 87



DOUBLE-ACTING HORIZONTAL FORCE PUMP designed for use on tank wagons, for thresher outfits, road rollers, portable saw mills, cement workers, stock wells, irrigation, spraying trees, etc., where water is not over 20 feet below the pump.

Well and strongly made in every part. **RUBBER-FACED DISCHARGE VALVES,** working on **CAST BRASS VALVE SEATS,** are readily accessible by removing plugs on top of valve chest. **RUBBER-FACED SUCTION VALVES,** working on **CAST BRASS SEATS,** are accessible by removing end cap from cylinder.

SUCTION is threaded for 2-inch female iron pipe, also with male thread, and fitted with union for 2-inch suction hose. **DISCHARGE** is threaded for 2-inch female iron pipe, and also threaded male, and fitted with a 2-inch swivel goose-neck with a 2x1 reducing hose union at the outer end.

⅞-INCH DRAWN STEEL PISTON ROD regularly furnished, but can be supplied with brass covered rod, at a slight additional cost.

STUFFING NUT is brass, and there is a Brass Friction Ring between Stuffing Nut and the Packing, making the packing more durable, and also making it easier to stop leakage around the piston rod.

CYLINDER-HEAD GASKETS are cut from a high-grade of red sheet rubber which is much superior to the ordinary paper or leather gasket commonly used.

All pins are 9/16-inch diameter, with extremely long bearing to insure wear. Handle socket is drilled with an extra hole 1¼ inch above piston rod to adapt the pump for use with pump jack.

Price, Fig. 87, Iron	15.00
" " 87, Brass Lined	25.00

Brass Covered or Tobin Bronze Piston Rods can be furnished at an additional cost.

FIRE PUMP

HORIZONTAL DOUBLE-ACTING

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIG. 47 AND 49

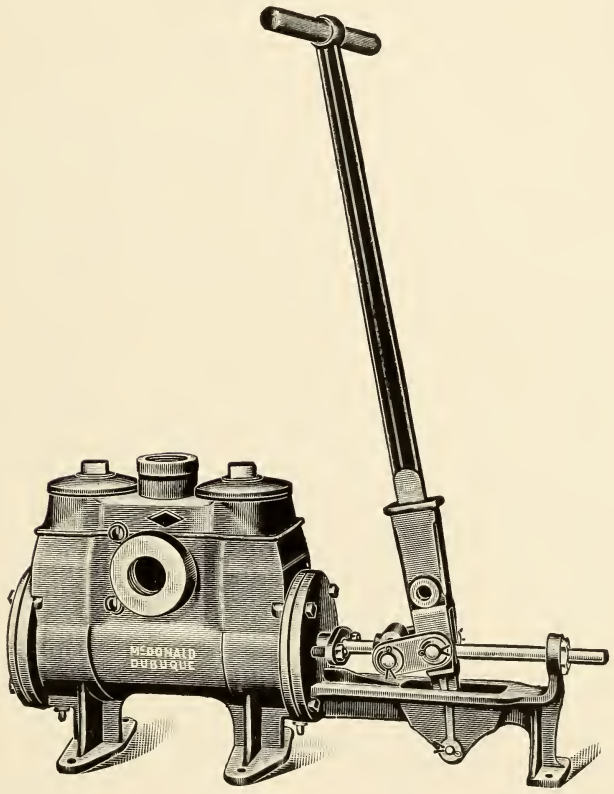


Fig. 47 is made with 4 and 5-inch cylinders, while Fig. 49 is made with 6-inch cylinders.

	Diameter Cylinder	Stroke	Capacity per Rev. Gallons	Suction	Discharge	Approximate Weight Pounds	Price Iron	Price Brass-Lined
Fig. 47, No. 8	4	5	.54	2	1½	76	28.50	32.00
" " " 10	5	5	.85	2	2	115	38.00	42.00
" 49 " 12	6	6	1.47	3	2½	211	54.00	64.00

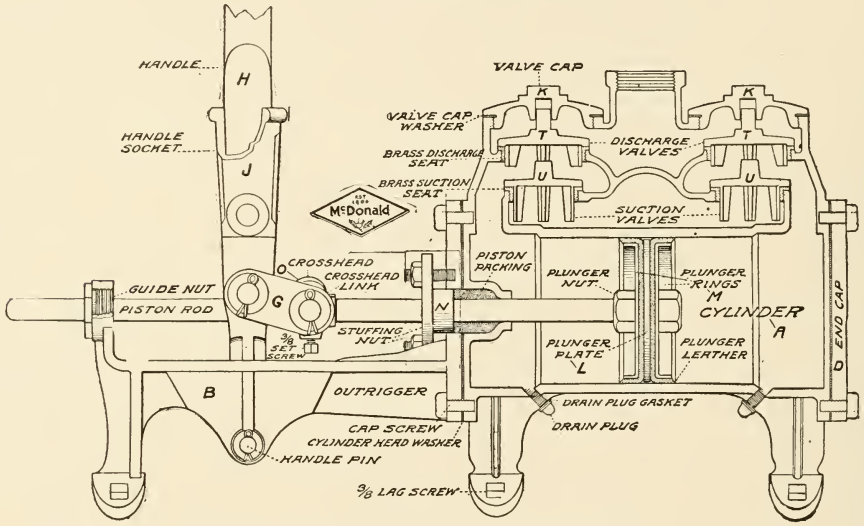
See description on following page.

FIRE PUMPS

HORIZONTAL DOUBLE ACTING FORCE PUMPS

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

FIGS. 47, 48 AND 49



These are very high class Pumps and intended particularly for fire pumps, and so constructed that there will be no failure when most needed. One important feature of these Pumps being the arrangement of the Valves above the Cylinders so that after it has been once primed, or used, it is impossible for it to lose its priming and the Cylinder will always remain full; the Plunger Leathers being continually immersed do not dry out, harden or shrink, and the Pump will always respond to the very first stroke.

The Cylinder and Valve Chest being cast in one piece, there are no joints excepting where the heads are attached to the Cylinder and at the Valve Caps.

VALVES ARE RED CAST BRASS ON CAST BRASS SEATS, GROUND TO A PERFECT FIT, INSURING A TIGHT JOINT WITHOUT THE USE OF RUBBER OR LEATHER FACING.

By removing the Valve Caps on the top of Pump, the Valves may be picked out by hand without disturbing the Pump or its connections.

While a Fire Pump should always be placed in a location where it will not freeze and the Pump always remaining primed, there are complete set of Drainage or Priming Plugs in these Pumps, all screwed for ¼-inch pipe.

Another important feature in connection with these Pumps is the outrigger. The weight of all moving parts and also of the person pumping is carried on the pin which runs through the bottom of the frame at the extreme lower end of the handle socket and the outer end of the piston rod is also guided and supported by this frame or outrigger. These features make it the easiest and most powerful working pump and invaluable in case of fire.

Any one who knows about the excitement and mistakes it is possible to make at a fire, knows what it means to have the moving parts almost unbreakable and in a straight line. Particular attention has been paid to these details and the results attained warrant us in claiming it to be the most powerful and positive double-acting Force Pump on the market for fire protection or for other purposes where large volumes of water are desired.

The Piston Rod is brass covered, ⅞-inch in diameter and in one continuous piece from piston to outside bearing end, thus making it most durable and strong.

Fig. 47 and 49 are intended for ordinary duty, but Fig. 48 makes the best Fire Pump, as more men can be put to work on it. This is an important feature during a fire.

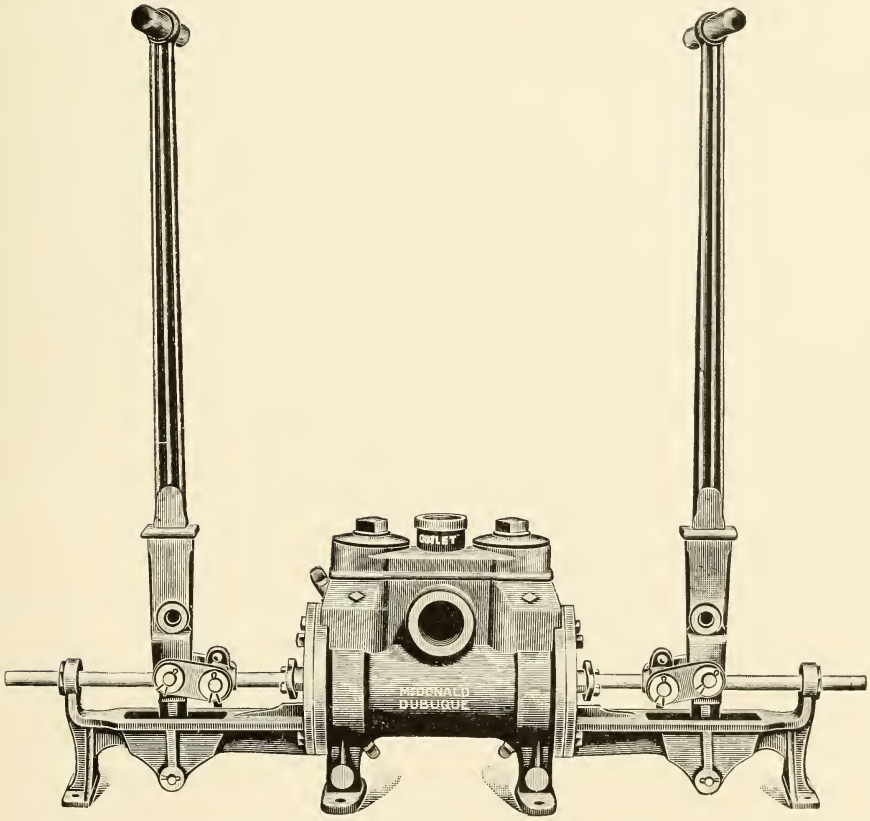
See illustrations and prices on preceding and following pages.

FIRE PUMPS

HORIZONTAL DOUBLE-ACTING
DOUBLE BRAKE

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS
NOT OVER 25 FEET DEEP

FIG. 48



	Diameter Cylinder	Stroke	Capacity per Rev. Gallons	Suction	Discharge	Approximate Weight Pounds	Price Iron	Price Brass-Lined
Fig. 48, No. 8	4	5	.54	2	1½	100	**34.50**	**38.00**
" 48 " 10	5	5	.85	2	2	154	**44.00**	**48.00**
" 48 " 12	6	6	1.47	3	2½	260	**60.00**	**70.00**

See description on preceding page.

POWER ROTARY PUMPS

MOUNTED ON IRON FRAME

FIG. 45—STANDARD

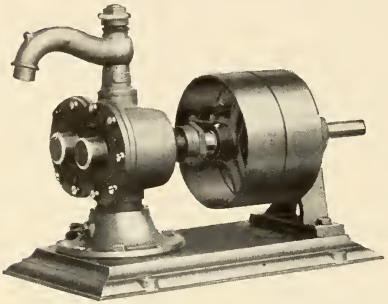


FIG. 45A—NEW MODEL

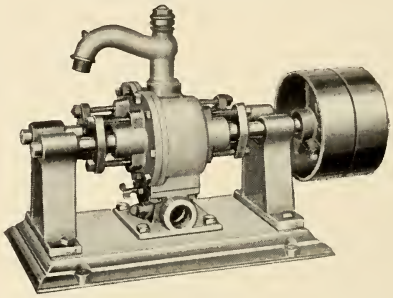


FIG. 45 is our Standard Power Rotary Force Pump on cast iron frame and arranged with tight and loose pulleys.

The pulleys are supported by very strong bearings, as shown, and these bearings are babbitted; the shaft extends out a sufficient length beyond the bearings to permit the use of a balance wheel, but this wheel is only furnished when ordered.

This pump can be used where a large quantity of water or other liquid is required; it is constructed to operate against any pressure from 10 to 40 pounds, discharging a steady stream. They will draw water from 12 to 15 feet and force it to an elevation of 90 feet.

By removing the cap on top of discharge and screwing it on the end of spout, the discharge pipe can be connected for elevating water or liquid.

For pumping acids or liquors, bronze pumps should be used, and when intended for hot liquids they should be ordered with metallic valves. When wanted for oil or gasoline they are specially packed and fitted, at an additional cost. **ALWAYS SPECIFY USE FOR WHICH PUMP IS INTENDED.**

An extra charge is made for balance wheel.

	No.	Suction Inches	Discharge Inches	Size Pulleys Inches	Capacity per 100 Revolutions Gallons	Price Iron	Price Bronze Case and Cams	Price Bronze
Fig. 45	1	1¼	1	10x3	13	**27.00**	**49.00**	**60.00**
" 45	2	1¼	1	10x3	14	**32.00**	**56.00**	**65.00**
" 45	3	1½	1¼	10x3	17	**38.00**	**63.00**	**75.00**
" 45	4	1½	1½	12x3½	27	**48.00**	**78.00**	**100.00**
" 45	5	2	2	12x3½	36	**54.00**	**90.00**	**120.00**

FIG. 45A is a new Model Power Rotary Pump, equipped with four babbitted box bearings, supported by hangers to bed plate below. This arrangement makes a very durable and efficient pump, holding cams in perfect alignment and eliminating all possible chance for wear on case and cams.

It is strong enough for real heavy work, as it will work up to 80 pounds pressure, and draw water 15 or 20 feet.

Connection for suction pipe can be made from below, or on either side of the base.

For pumping acids or liquors, bronze pumps should be used, and when intended for hot liquids they should be ordered with metallic valves.

When wanted for oil or gasoline, they are specially fitted and packed at an additional cost, and **ORDER SHOULD SPECIFICALLY STATE USE FOR WHICH PUMP IS WANTED.**

Fig. 45A	1	1¼	1	10x3	13	**30.20**	**96.60**	**105.40**
" 45A	2	1¼	1	10x3	14	**33.85**	**107.60**	**116.60**
" 45A	3	1½	1¼	10x3	17	**42.75**	**125.40**	**134.40**
" 45A	4	1½	1½	12x3½	27	**75.80**	**160.00**	**172.80**
" 45A	5	2–2½–3	2	12x3½	36	**82.40**	**180.00**	**195.20**

Bronze pumps have all parts coming in contact with liquid of bronze. Rate of speed, Fig. 45, 100 to 200 revolutions per minute; Fig. 45A, 200 to 300 revolutions per minute, but we recommend 200 revolutions per minute.

ROTARY PUMPS

FIG. 44
HAND PUMP ON PEDESTAL

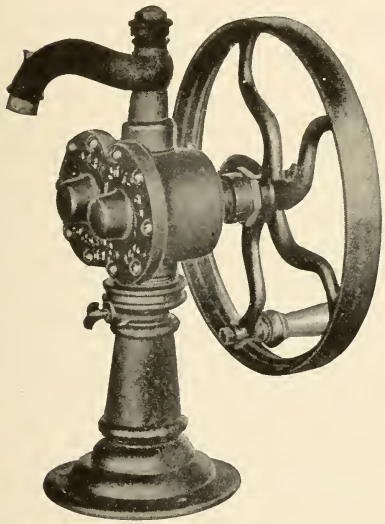


FIG. 45B
POWER SANITARY MILK PUMP

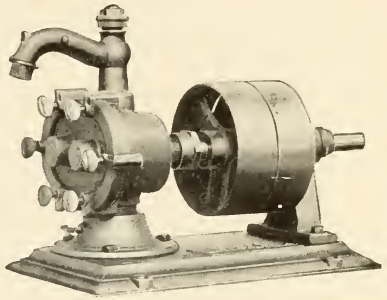


FIG. 44

Hand Rotary Force Pump has a 14½-inch flywheel and can be operated at the rate of 75 R. P. M. It throws a steady stream, and will draw water or liquid 15 feet and force it to an elevation not exceeding 50 feet.

The pedestal elevates the pump to a position convenient to operate. By removing the cap on top of discharge and screwing it on the end of spout, discharge pipe can be connected for elevating the water or liquid.

For pumping acids or liquors bronze pumps should be used, and when intended for hot liquids they should be ordered with metallic check valves. When wanted for oil or gasoline they are specially packed and fitted, at an additional cost, **AND ORDER SHOULD SPECIFICALLY STATE USE FOR WHICH PUMP IS DESIRED.**

In cold weather the pump should be thoroughly drained to prevent freezing, brass drain plug at the top of pedestal being provided for this purpose.

No.	Suction Inches	Discharge Inches	Diameter Balance Wheel Inches	Capacity per 100 Revolutions Gallons	Price Iron	Price Bronze Case and Cams	Price Bronze
1	1¼	1	14½	13	**19.00**	**41.00**	**51.00**
2	1¼	1	14½	14	**22.00**	**46.00**	**56.00**
3	1½	1¼	14½	17	**26.00**	**51.00**	**63.00**

Bronze pumps have all parts coming in contact with liquid of bronze.

FIG. 45B

Shows our improved Rotary Milk Pump, absolutely sanitary in every detail, simple, durable, practical in construction and efficient in service.

The face plate is attached to case by malleable clamps, easily and quickly taken off, providing ready access to the working parts of the pump.

The cams are removable and fit in an accurately machined case. All parts coming in contact with the liquid are smooth and can be easily cleaned.

This pump is designed especially for use in creameries where the frequent flushing of the pump is necessary. Fitted with tight and loose pulleys. Speed, 100 to 200 R. P. M.

No.	Suction Inches	Discharge Inches	Size Pulleys Inches	Capacity per 100 Revolutions Gallons	Price
1	1¼	1	10x3	13	**28.60**
2	1¼	1	10x3	14	**32.70**
3	1½	1¼	10x3	17	**42.05**
4	1½	1½	12x3½	27	**78.45**
5	2	2	12x3½	36	**83.50**

HYDRAULIC RAMS

A BRIEF DESCRIPTION OF THE HYDRAULIC RAM

The cut on the following page represents one of our improved Hydraulic Rams. The water is taken through the **DRIVE PIPE** to the **RAM** located in any convenient position not less than 25 or 50 feet from the fountain. This is necessary, as about this length of pipe is required to secure the velocity of water requisite to work the ram properly. In cases where it is not practicable, the pipe may be bent in a coil five or six feet in diameter. From the ram the water is forced upward through the discharge pipe, as shown, to the point of discharge. The ram and pipe should be carefully secured against the effects of the frost.

The simple and effective operation of this machine, and its great durability withal, renders it the most useful and valuable apparatus yet developed in the department of hydraulics for elevating water and conveying it almost any desired distance—depending, however, on the amount of fall at disposal.

It is practicable where the spring or brook is only 18 inches higher than the ram; yet as the height increases the more powerful the ram operates and its ability to force water to a greater elevation and distance correspondingly strengthened. The relative height of the spring or source of supply above the ram, and the elevation to which it is required to raise, determine the relative proportion between the water raised and wasted — the quantity raised varying according to the height it is conveyed with a given fall; also the distance the water has to be conducted, and consequent length of pipes, have some influence on the quantity delivered at the point of discharge, as the more extended the pipes through which the water has to be forced by the ram, the more friction there is to overcome by additional efforts on the part of the machine; notwithstanding rams are frequently and successfully employed for driving water a distance of 100 to 200 rods, to an altitude of 100 to 200 feet above the ram, and severer trials than these even testify to the indispensability of this almost automatic device. A fall of ten feet from the brook or spring to the ram is abundantly sufficient to raise water to any point less than 150 feet above the location of the machine, while the same amount of fall will also raise water to a point considerably higher, though the supply of water will be proportionately diminished as the height and distance increases. When the requisite quantity of water is forthcoming from the ram, operating under a certain fall, it is not judicious to give it more, for by so doing the strain on the machine is measurably augmented, those parts doing the labor are overtaxed and the durability of the apparatus impaired and lessened.

For ordinary purposes it is sufficient to say that in conveying water, say 50 or 60 rods, it may be safely calculated that one-seventh of the water can be raised at an elevation five times as high as the fall, or one-fourteenth part can be raised and discharged, say ten times as high as the fall applied, and so on in like proportion as the fall or height is varied.

Thus, with a fall of five feet of every seven gallons drawn from the fountain, one may be raised twenty-five feet, or half a gallon fifty feet. Or with ten feet fall, one gallon of every fourteen may be raised to the height of one hundred feet, and so in like proportion as the fall or height is increased.

Turns, in either drive or discharge pipe, should be avoided if possible. When it is impossible to set the ram without having elbows in the pipe, make the elbows as large as may be, so as to place as little obstruction to the free and easy flow of the water as is practicable.

These machines are made of iron and bronze. The valve stem and case are made of the latter material, which has more durable and lasting qualities than any other composition.

IMPROVED HYDRAULIC RAM

FOR THE SUPPLY OF DWELLINGS, FACTORIES, VILLAGES, RAILROAD STATIONS, STOCK YARDS, ETC., WITH RUNNING WATER

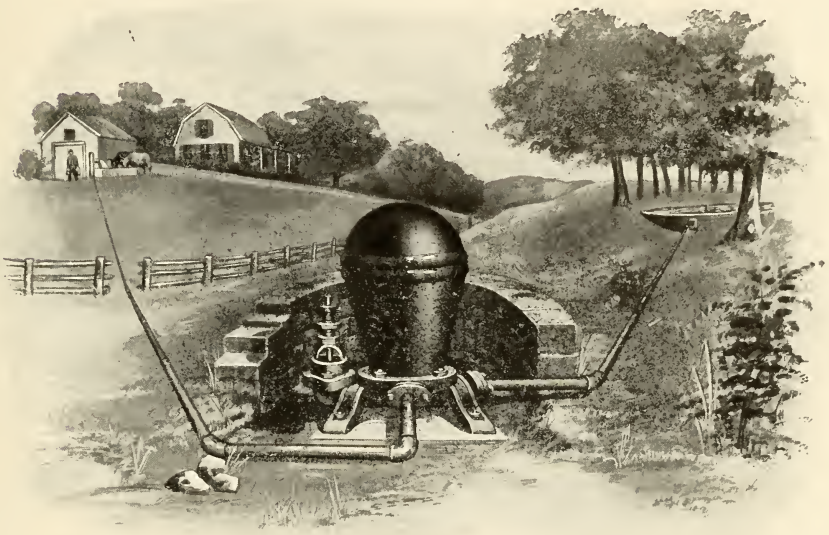


Plate E7831

Size No.	Quantities of Water Furnished by the Fountain to which the Ram is Adapted	Length of Drive Pipe Feet	Caliber of Pipes Inches		Price
			Drive	Discharge	
2	2 quarts to 2 gallons per min.	25 to 50	¾	⅜	**9.00**
3	1½ gallons " 4 " "	25 " 50	1	⅜	**11.00**
4	3 " " 7 " "	25 " 50	1½	½	**14.00**
5	6 " " 14 " "	25 " 50	2	1	**22.00**
6	11 " " 25 " "	25 " 50	2½	1¼	**40.00**
7	20 " " 50 " "	25 " 50	4	2	**75.00**
8	25 " " 75 " "	25 " 50	6	2½	**125.00**

The size of the pipe should vary in proportion to the distance the water is to be conveyed, as the greater the distance the larger the pipe, in proportion to the size of the machine. This applies to both the drive and discharge pipes.

By means of an adjuster applied to each of our rams, the quantity of water drawn from the fountain may be varied at pleasure, thus readily adapting the machine to a variable supply. The above table exhibits at a glance capacity, size, price, etc.

For description see preceding page.

McDONALD CYLINDERS

In issuing this catalogue of cylinders, we aim to show the most popular cylinders of our line, and in many cases we show sectional views which are self-explanatory.

Water supply is one of the most important propositions for every one, especially so for farmers and stockmen, and a good well is worth little unless it is equipped with a first-class cylinder to bring the water out, because, being the heart of the pump, no pump can be satisfactory with a poorly constructed or defective cylinder, of which latter great numbers are placed on the market every year and found to be dear at any price. To obtain satisfactory service, the cylinder must be mechanically perfect in every particular, while the top or standard is of secondary import.

The best cylinders are the cheapest for the owner, because they wear longer without repairing, and furnish water to their full capacity more certainly than the cheaper cylinders. Our experience, covering fifty years in the manufacture of cylinders, has given us wide knowledge of the various needs in different localities, and the many styles illustrated in this catalogue have extensive sale in different localities accordingly. Cylinders that are entirely satisfactory or acceptable in one section may not be suitable or liked in others, owing to difference in depth of wells, quality of water, or trade usage, and this is our reason for showing a wide spread of styles in cylinders, plungers and check valves.

The quality of **McDONALD CYLINDERS** is so well known and so well established with the trade that we need only to state they are still as good as always and superior to all other makes.

IRON CYLINDERS

It is impossible to cast a cylinder perfectly round, so that after casting, the cylinder must be bored or turned so as to be perfectly true; then it is put in a machine and ground or polished to obliterate the marks left by the boring tool and to smooth it up, so that the plunger will work properly and with the least possible wear. When this boring and polishing is not done accurately the leathers wear out very rapidly, and the dealer's reputation for first-class goods suffers in consequence.

BRASS LINED CYLINDERS

One of the prime causes for the plunger leathers wearing out is from rust in the cylinder, and to overcome this objection the brass lined cylinder was introduced about 1876 and met with a success unparalleled in the pump line. The shell of the brass lined cylinder is identical to the iron cylinder, and a piece of seamless drawn polished brass tube is pressed firmly into the iron shell and expanded at both ends so as to hold it rigidly in place, the iron shell affording an excellent protection to the brass tube or lining and rendering it almost indestructible.

THIS FIRM IS THE ORIGINATOR OF THE BRASS LINED CYLINDER, HAVING INTRODUCED IT ABOUT THE YEAR 1876.

BRASS TUBE CYLINDERS

The brass tube cylinder has, in a great measure, given way to the brass lined cylinder, but it is still preferred in some localities, and is made of heavy seamless drawn polished brass tube, but is not as strong as a brass lined cylinder because it lacks the protection of the iron shell. The greatest demand for brass tube cylinders is with flush caps, so as to permit the use of the largest possible diameter cylinder in a well of certain limited diameter. All of our brass tube cylinders are highly polished on the outside, which lends greatly to their appearance, and the threads on the body are heavy, coarse and deep cut, to eliminate danger of stripping or crossing threads.

McDONALD CYLINDERS

LEATHER

Everyone understands that there is no substitute as good as leather itself for use in cylinders when pumping water; also that the price of a valve or plunger leather is small as compared to the cost of putting them in place when making repairs, and that it is economy to pay a reasonable price for a good article. Most people understand the value of good leather, though few realize the care which must be taken to secure good leather. Among the essential things necessary to procure good leather are the following: 1st, the hide must be taken from an animal which is matured, but not over four or five years old; 2nd, the animal must be healthy; 3rd, a special process must be used in preparing the leather, for the method used in preparing good sole leather would not make good pump leather; 4th, only certain parts of the hide can be used, i. e., the center parts, as the necks, legs and flanks will not do for good leathers. A leather which is flabby, spongy or stringy, and which has been crisped by heat to keep its form, is not a good leather, as everyone knows how brittle leather is which has been crisped.

We have been making leathers for a long time and know just what kind of hide will produce best results, and the leathers contained in our cylinders are the best it is possible for anyone to make. The makers of the best belting use the center of the hide; jobbers and dealers are familiar with circulars descriptive of this fact. It is a common practice among makers of pump leathers to buy the waste parts and make use of them for plunger and valve leathers, but we, on the other hand, have always made use of entire new hides prepared and cured from start to finish to be used as pump leathers, and we are probably the largest users in the U. S. of new stock for this purpose.

Our machinery equipment for making pump leathers, and the superior stock used, enables us to turn out cupped and flat leathers of exceptional appearance and quality, and they are shipped out to the trade packed in neat boxes of one dozen each and properly labeled.

WORKMANSHIP

It is too often the case that cheap or unskilled labor is employed and the result is inferior goods, untold trouble, and consequent loss of trade to all concerned. We employ only skilled mechanics who have been trained in this department to such a degree that the product leaving their hands is unquestioned, and while this increases the cost, the results have been most encouraging, and we have met with such hearty support from the dealers in general, and practical pump men in particular, that it is our aim and intent to maintain supremacy in this field and to continue to make the Best Cylinders in the Country.

RECOMMENDATIONS

Our line is so complete that we can furnish almost any kind of cylinder, plunger or check valve desired, and while we recommend brass lined cylinders with all brass plungers and one of our brass and rubber check valves for wells of any depth, yet for wells over 150 feet to the water our experience justifies us in advising the use of brass lined cylinders with brass four-leather bronze ball plunger and either of our brass and rubber check valves. In some sections where wells are extremely deep (over 300 feet to the water) most excellent satisfaction has resulted from the use of our Cylinder No. 38, the double check, which has a bronze ball working above a brass and rubber poppet check valve, making it almost impossible for water to leak back; but a large number of our customers in deep well territory prefer our Cylinder No. 37, with four-leather bronze ball plunger and bronze ball check valve, with 1¼-inch patent valve foot valve suspended about 1 foot below the cylinder, and this latter in our opinion makes the best possible combination for a deep well where 1¼-inch pipe is used.

There is no set rule as to the proper size of cylinders to be used in wells of various depths, that depending entirely on the amount of water desired and the power applied, though in a general way, when used with windmill or hand power, we advise the following as a guide:

Diameter of cylinder.....inches	2	2¼	2½	2¾	3	3¼	3½	4
Size of Suction Pipe (or larger)..... "	1¼	1¼	1¼	1¼	1¼	1¼	1¼	2
	over							
Depth of Well.....feet	300	300	250	125	90	70	50	30

As a general proposition we would advise submerging the cylinder below the water, particularly in deep wells, as it makes the priming of the cylinder certain, and unless absolutely necessary never use more than one length (about 20 feet) of pipe below the cylinder and preferably not over four or five feet.

McDONALD CYLINDERS

TABLES OF MEASUREMENTS, TAPPINGS, ETC.

SIZE OF TAPPING

The following table gives the various sizes of cylinders (diameter) and states the size pipe that caps are always tapped unless otherwise ordered; it also gives the size of rod or stub to connect to pump.

Diameter Cylinder.....inches	1⅝	1¾	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	6
Size Pipe..... "	1	1	1¼	1¼	1¼	1¼	1¼	1¼	1¼	2	2	2	3
" Rod..... "	⅜	⅜	7/16	7/16	7/16	7/16	7/16	7/16	7/16	7/16	½	½	½

4½, 5 and 6-inch are fitted for ½-inch pipe, instead of rod.

The following table gives the extreme size that caps may be tapped if desired.

Diameter Cylinder....inches	1⅝	1¾	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	6
Size Pipe..... "	1	1	2	2	2	2	2	2	2	2½	2½	3	4

LENGTH OF STROKE

The following table gives the stroke of outside cap cylinders of various lengths when fitted with different kinds of plungers.

Length of Cylinder Inches	Stroke in Inches with 1-leather Plunger	2-leather Plunger	4-leather Plunger	(Bronze Ball Plunger) 2-leather	4-leather
10	8	....	....	....	..
12	8	8½	....	....	..
14	9½	10½	8½	9½	..
16	9½	12½	10½	11½	10
18	11	14½	12½	13½	12
20	13	16½	14½	15½	14
24	17	20½	18½	19½	18

In case a Bronze Ball is used in the lower cap, deduct 1½ inches from length of stroke as given in the above table.

In case the Double Check Valve, Bronze Ball and Poppet is used, deduct 3 inches from the length of stroke given in the above table.

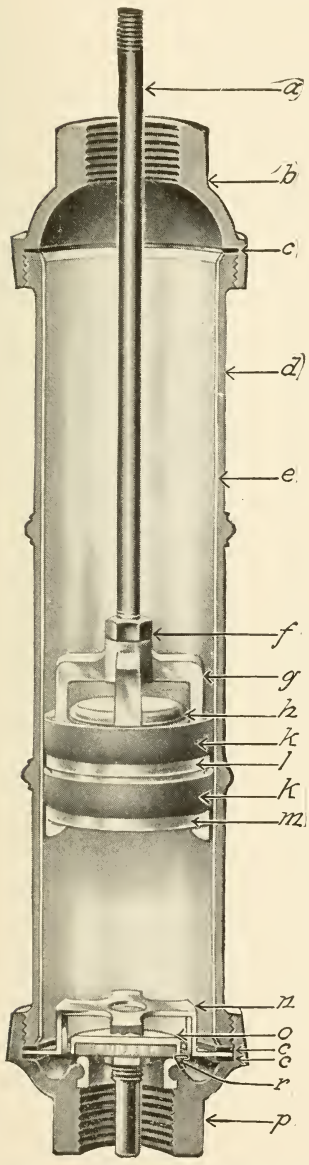
In case of Flush Cap Cylinders, deduct 2 or 2½ inches from the length of stroke given in above table.

OUTSIDE DIAMETER OF CYLINDERS

The following table gives the extreme outside diameter of the various sizes and kinds of cylinders.

Inside Diameter of Cylinder.....inches	1⅝	1¾	2	2¼	2½	2¾	3
Iron or B. L. Outside Caps..... "	...	...	3 1/16	3 5/16	3 9/16	3 13/16	4 1/16
" " " Flush " ..... "	...	...	2¾	2 15/16	3¼	3½	3 11/16
Brass Tube, Outside " ..... "	...	...	2 5/8	3 1/16	3 5/16	3 9/16	3 13/16
" " Flush " ..... "	1⅞	2	2¼	2½	2¾	3	3¼

Inside Diameter of Cylinder.....inches	3¼	3½	4	4½	5	6	...
Iron or B. L. Outside Caps..... "	4 3/8	4 5/8	5 1/8	5 13/16	6 15/16	7½	...
" " " Flush " ..... "	4	4¼	4 11/16	...	...	...	...
Brass Tube, Outside " ..... "	4 1/16	4 3/8	4 7/8	5¼	5 13/16	7⅛	...
" " Flush " ..... "	3½	3¾	4¼	4¾	5¼	6¼	...



McDONALD CYLINDERS

All of our cylinders are made from the best materials, and our factory is equipped with the most approved machinery, while our mechanics are experts in their line, so that the resultant product is superior in every respect.

None but the very best grade of northern pig iron is used in making our iron castings, and our blend or mixture is the strongest that can be obtained, yet is not so brittle as it is in many castings produced by other blends.

All castings are smooth, well made and free from flaws.

Brass parts are very heavy, made in our own brass foundry and finished in our own brass machine shop. Having a fully equipped factory for the manufacture of brass goods, we are better able to make the brass parts of cylinders than any other firm, and we use only the best quality of brass for the purpose.

In our brass-lined cylinders the lining is made from American Tube Works seamless drawn brass tubing.

Plungers are regularly sent with two leathers in all cylinders 12 inches long and longer. Plunger yoke is heavy and strong, providing ample lift for the poppet and full waterway. Plunger poppet is also quite heavy with a long heavy stem causing it to seat quickly and preventing back slippage of water. It is faced true to make a perfect seat. Plunger follower is faced perfectly true, so that in contact with the face of the poppet it is water tight as it should be. Plunger ring separates the two leathers and holds them relative in position. Jam nut on plunger rod, immediately above the plunger yoke, tightens the rod in the yoke preventing it from working loose and injuring the thread. Plunger rod is $\frac{7}{16}$-inch by 12-thread galvanized iron and of proper length for the various cylinders.

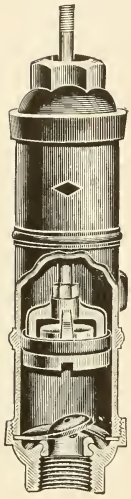
The illustration shows our **McDONALD BRASS PATENT VALVE.** We also make six or seven different styles of check valves, which are fully described and illustrated in this catalog. Sectional cuts on the following pages show the various styles of plungers and check valves used in combination to suit varying requirements.

NAMES OF CYLINDER PARTS AS INDICATED BY LETTERS ABOVE

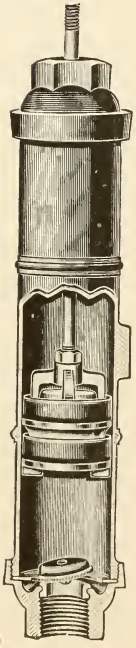
A—Plunger Rod.
B—Top Cap.
C—Leather Washer.
D—Iron Shell.
E—Brass Lining.
F—Jam or Lock Nut.
G—Plunger Cage.
H—Plunger Poppet.
K—Cupped Leather.
L—Plunger Ring.
M—Plunger Follower.
N—Patent Valve Cage.
O—Patent Valve Poppet.
P—Bottom Cap.
R—Patent Valve Rubber.

IRON CYLINDERS

10-INCH CYLINDER



12-INCH AND LONGER CYLINDER



WITH LEATHER CHECK VALVES

ALL IRON PLUNGER, OR IRON PLUNGER, BRASS CAGE AND VALVE

Two-leather plungers regularly furnished in all cylinders, 12 inches long and longer.

Iron cylinders with all iron plunger and leather check valve will be designated as **No. 1.**

Iron cylinders with brass cage and valve and leather check valve will be designated as **No. 2.**

TWO-LEATHER PLUNGER

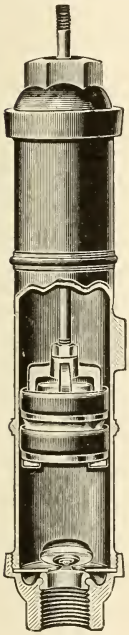
In ordering these Iron Cylinders with Leather Check Valve, specify style of Cylinder and Plunger wanted by number. If not otherwise specified, Iron Cylinders 10 inches long will be sent No. 1 and 12 inches long and longer will be sent No. 2.

Size, Inches		No. 1	No. 2
2 x10.....	each	.....	4.50
2¼x10.....	"	.....	4.75
2½x10.....	"	4.35	5.35
2¾x10.....	"	4.70	5.70
3 x10.....	"	5.00	6.25
3¼x10.....	"	6.00	7.50
3½x10.....	"	7.00	8.75
4 x10.....	"	9.00	11.50
4½x10.....	"	12.50	15.75
5 x10.....	"	16.50	20.50
6 x10.....	"	24.00	29.00
2 x12.....	"	.....	6.25
2¼x12.....	"	.....	6.50
2½x12.....	"	6.00	7.00
2¾x12.....	"	6.50	7.50
3 x12.....	"	7.00	8.25
3¼x12.....	"	8.00	9.50
3½x12.....	"	9.00	10.75
4 x12.....	"	11.50	14.00
4½x12.....	"	15.00	18.25
5 x12.....	"	20.00	24.00
6 x12.....	"	28.50	33.50
2 x14.....	"	.....	6.75
2¼x14.....	"	.....	7.00
2½x14.....	"	6.50	7.50
2¾x14.....	"	7.00	8.00
3 x14.....	"	7.50	8.75
3¼x14.....	"	8.75	10.25
3½x14.....	"	10.00	11.75
4 x14.....	"	13.00	15.50
4½x14.....	"	17.50	20.75
5 x14.....	"	22.50	26.50
6 x14.....	"	33.50	38.50

Size, Inches		No. 1	No. 2
2 x16.....	each	.....	6.75
2¼x16.....	"	.....	7.25
2½x16.....	"	7.00	8.00
2¾x16.....	"	7.50	8.50
3 x16.....	"	8.00	9.25
3¼x16.....	"	9.75	11.25
3½x16.....	"	11.25	13.00
4 x16.....	"	14.50	17.00
4½x16.....	"	18.50	21.75
5 x16.....	"	25.00	29.00
6 x16.....	"	37.50	42.50
8 x16.....	"	75.00	85.00
2 x18.....	"	.....	7.50
2¼x18.....	"	.....	7.75
2½x18.....	"	7.50	8.50
2¾x18.....	"	8.00	9.00
3 x18.....	"	8.50	9.75
3¼x18.....	"	10.75	12.25
3½x18.....	"	12.50	14.25
4 x18.....	"	16.00	18.50
4½x18.....	"	22.50	25.75
5 x18.....	"	30.00	34.00
6 x18.....	"	42.50	47.50
2 x20.....	"	.....	8.25
2¼x20.....	"	.....	8.75
2½x20.....	"	8.50	9.50
2¾x20.....	"	9.00	10.00
3 x20.....	"	9.50	10.75
3¼x20.....	"	11.50	13.00
3½x20.....	"	13.50	15.25
4 x20.....	"	17.00	19.50
4½x20.....	"	25.00	28.25
5 x20.....	"	34.00	38.00
6 x20.....	"	50.00	55.00

IRON CYLINDERS

12-INCH AND LONGER CYLINDER



WITH KEY CITY SAND VALVE

ALL IRON PLUNGER OR

IRON PLUNGER, BRASS CAGE AND VALVE

Two-leather plungers regularly furnished in all cylinders 12 inches long and longer.

Iron cylinders with all iron plunger and Key City Sand Valve will be designated **No. 3.**

Iron cylinders with brass cage and valve and Key City Sand Valve will be designated **No. 4.**

TWO-LEATHER PLUNGER

KEY CITY SAND VALVE

SIZES AND PRICES

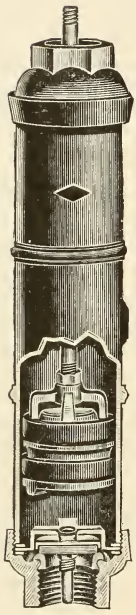
Sizes	Price No. 3	Price No. 4	Sizes	Price No. 3	Price No. 4
2 x10	.....	4.50	2 x14	.....	6.75
2¼x10	.....	4.75	2¼x14	.....	7.00
2½x10	4.35	5.35	2½x14	6.50	7.50
2¾x10	4.70	5.70	2¾x14	7.00	8.00
3 x10	5.00	6.25	3 x14	7.50	8.75
3¼x10	6.00	7.50	3¼x14	8.75	10.25
3½x10	7.00	8.75	3½x14	10.00	11.75
4 x10	9.00	11.50	4 x14	13.00	15.50
2 x12	.....	6.25	2 x16	.....	6.75
2¼x12	.....	6.50	2¼x16	.....	7.25
2½x12	6.00	7.00	2½x16	7.00	8.00
2¾x12	6.50	7.50	2¾x16	7.50	8.50
3 x12	7.00	8.25	3 x16	8.00	9.25
3¼x12	8.00	9.50	3¼x16	9.75	11.25
3½x12	9.00	10.75	3½x16	11.25	13.00
4 x12	11.50	14.00	4 x16	14.50	17.00

In ordering above iron cylinder with Key City Sand Valve, specify style of plunger wanted by number. Unless otherwise specified Iron Cylinders 10 inches long will be sent No. 3, and Iron Cylinders 12 inches long and longer will be sent No. 4.

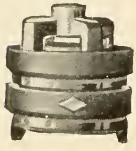
IRON CYLINDERS

WITH McDONALD BRASS PATENT VALVE

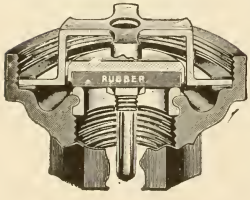
ALL IRON PLUNGER, OR IRON PLUNGER, BRASS CAGE AND VALVE



TWO-LEATHER PLUNGER



McDONALD BRASS PATENT VALVE



Two leather plungers regularly furnished in all cylinders 12 inches long and longer. All cylinders have brass valve seats. Cut shows cylinder 12 inches long or longer.

Iron cylinders with all iron plunger and McDonald Brass Patent Valve will be designated **No. 5.**

Iron cylinders with brass cage and valve and McDonald Brass Patent Valve will be designated **No. 6.**

In ordering above iron cylinders with McDonald Brass Patent Valve, specify style of plunger wanted by number. Unless otherwise specified, iron cylinders 10 inches long will be sent No. 5, and 12 inches long and longer will be sent No. 6.

Sizes, Inches	No. 5	No. 6	Sizes, Inches	No. 5	No. 6
2 x10...each	....	4.50	2 x16...each	....	6.75
2¼x10... "	....	4.75	2¼x16... "	....	7.25
2½x10... "	4.35	5.35	2½x16... "	7.00	8.00
2¾x10... "	4.70	5.70	2¾x16... "	7.50	8.50
3 x10... "	5.00	6.25	3 x16... "	8.00	9.25
3¼x10... "	6.00	7.50	3¼x16... "	9.75	11.25
3½x10... "	7.00	8.75	3½x16... "	11.25	13.00
4 x10... "	9.00	11.50	4 x16... "	14.50	17.00
4½x10... "	12.50	15.75	4½x16... "	18.50	21.75
5 x10... "	16.50	20.50	5 x16... "	25.00	29.00
6 x10... "	24.00	29.00	6 x16... "	37.50	42.50
.....	.....	.....	8 x16... "	75.00	85.00
2 x12... "	....	6.25	2 x18... "	....	7.50
2¼x12... "	....	6.50	2¼x18... "	....	7.75
2½x12... "	6.00	7.00	2½x18... "	7.50	8.50
2¾x12... "	6.50	7.50	2¾x18... "	8.00	9.00
3 x12... "	7.00	8.25	3 x18... "	8.50	9.75
3¼x12... "	8.00	9.50	3¼x18... "	10.75	12.25
3½x12... "	9.00	10.75	3½x18... "	12.50	14.25
4 x12... "	11.50	14.00	4 x18... "	16.00	18.50
4½x12... "	15.00	18.25	4½x18... "	22.50	25.75
5 x12... "	20.00	24.00	5 x18... "	30.00	34.00
6 x12... "	28.50	33.50	6 x18... "	42.50	47.50
2 x14... "	....	6.75	2 x20... "	....	8.25
2¼x14... "	....	7.00	2¼x20... "	....	8.75
2½x14... "	6.50	7.50	2½x20... "	8.50	9.50
2¾x14... "	7.00	8.00	2¾x20... "	9.00	10.00
3 x14.., "	7.50	8.75	3 x20... "	9.50	10.75
3¼x14... "	8.75	10.25	3¼x20... "	11.50	13.00
3½x14... "	10.00	11.75	3½x20... "	13.50	15.25
4 x14... "	13.00	15.50	4 x20... "	17.00	19.50
4½x14... "	17.50	20.75	4½x20... "	25.00	28.25
5 x14... "	22.50	26.50	5 x20... "	34.00	38.00
6 x14... "	33.50	38.50	6 x20... "	50.00	55.00

IRON CYLINDERS, FLUSH CAP

FLUSH CAP IRON CYLINDER

WITH McDONALD BRASS PATENT VALVE

IRON TWO-LEATHER PLUNGER, BRASS CAGE AND VALVE, OR IRON FOUR-LEATHER PLUNGER, BRASS CAGE AND VALVE

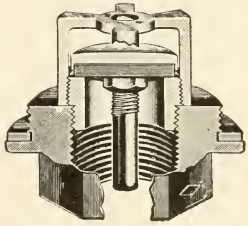
Two-leather plungers regularly furnished in these cylinders. All cylinders have brass valve seats.

Iron flush cap cylinders with two-leather plunger, brass cage and valve and McDonald Brass patent valve will be designated **No. 7.**

Iron flush cap cylinders with four-leather plunger, brass cage and valve and McDonald brass patent valve will be designated **No. 8.**

FOUR-LEATHER PLUNGER

McDONALD BRASS PATENT VALVE



SIZES AND PRICES

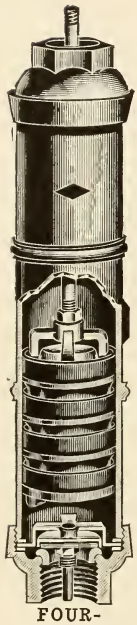
Sizes	Price Nos. 7 and 8	Sizes	Price Nos. 7 and 8
2 x14	6.75	2 x18	7.50
2¼x14	7.00	2¼x18	7.75
2½x14	7.50	2½x18	8.50
2¾x14	8.00	2¾x18	9.00
3 x14	8.75	3 x18	9.75
3¼x14	10.25	3¼x18	12.25
3½x14	11.75	3½x18	14.25
4 x14	15.50	4 x18	18.50
2 x16	6.75	2 x20	8.25
2¼x16	7.25	2¼x20	8.75
2½x16	8.00	2½x20	9.50
2¾x16	8.50	2¾x20	10.00
3 x16	9.25	3 x20	10.75
3¼x16	11.25	3¼x20	13.00
3½x16	13.00	3½x20	15.25
4 x16	17.00	4 x20	19.50

In ordering above Iron Flush Cap Cylinders, which always have McDonald Brass Patent Valves, specify style of Plunger wanted by number. Unless otherwise specified No. 7 will be sent. List is same on both No. 7 and No. 8 but discount is different.

IRON CYLINDERS

WITH FOUR-LEATHER IRON PLUNGER BRASS CAGE AND VALVE

AND McDONALD BRASS PATENT VALVE, DIAMOND WING CHECK VALVE, OR IOWA BEVEL SEAT CHECK VALVE



FOUR-LEATHER PLUNGER

Iron cylinders with four-leather plunger, brass cage and valve, and McDonald brass patent valve will be designated **No. 9.**

Same, but with diamond wing check valve will be designated **No. 10.**

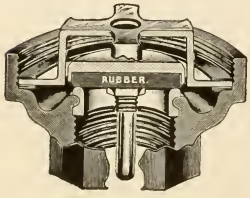
Same, but with Iowa bevel seat check valve will be designated **No. 11.**

SIZES AND PRICES

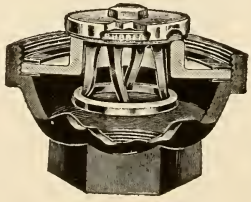
Sizes	Prices Nos. 9, 10, 11	Sizes	Prices Nos. 9, 10, 11
2 x14	6.75	2 x18	7.50
2¼x14	7.00	2¼x18	7.75
2½x14	7.50	2½x18	8.50
2¾x14	8.00	2¾x18	9.00
3 x14	8.75	3 x18	9.75
3¼x14	10.25	3¼x18	12.25
3½x14	11.75	3½x18	14.25
4 x14	15.50	4 x18	18.50
2 x16	6.75	2 x20	8.25
2¼x16	7.25	2¼x20	8.75
2½x16	8.00	2½x20	9.50
2¾x16	8.50	2¾x20	10.00
3 x16	9.25	3 x20	10.75
3¼x16	11.25	3¼x20	13.00
3½x16	13.00	3½x20	15.25
4 x16	17.00	4 x20	19.50

In ordering any of the above cylinders, specify style of Check Valve wanted by number. List is same on all of them but discount varies.

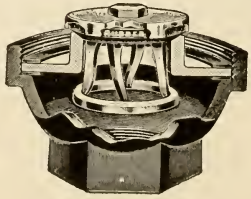
McDONALD BRASS PATENT VALVE



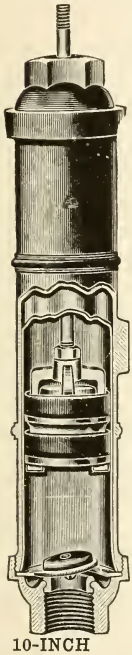
DIAMOND WING CHECK VALVE



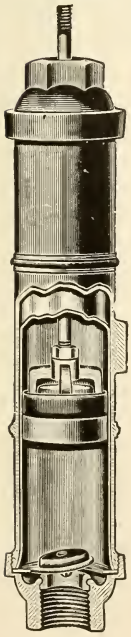
IOWA BEVEL SEAT CHECK VALVE



12 TO 20-IN.



10-INCH



BRASS-LINED CYLINDERS

WITH LEATHER CHECK VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two-leather plungers regularly furnished in all cylinders 12 inches long and longer.

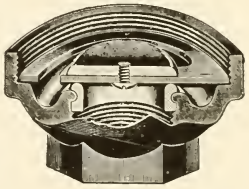
All cylinders have Brass Valve Seats.

Brass-lined cylinders with brass cage and valve and leather check valve will be designated **No. 12.**

Brass-lined cylinders with all brass plunger and leather check valve will be designated **No. 13.**

In ordering above Brass-Lined Cylinders with Leather Check Valves, specify style of Plunger wanted by number. Unless otherwise ordered, Brass-Lined Cylinders will be sent No. 12. We recommend the use of No. 13 in preference to No. 12, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in cost.

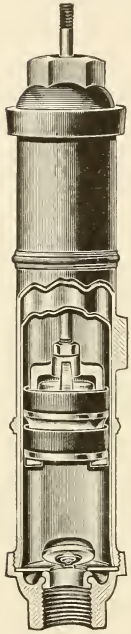
BOTTOM CAP



Sizes, Inches	No. 12	No. 13	Sizes, Inches	No. 12	No. 13
2 x 10...each	7.50	8.00	2 x 16...each	9.00	10.50
2¼ x 10... "	7.75	8.25	2¼ x 16... "	9.75	11.25
2½ x 10... "	8.00	8.50	2½ x 16... "	10.25	11.75
2¾ x 10... "	8.50	9.00	2¾ x 16... "	10.75	12.25
3 x 10... "	9.00	9.75	3 x 16... "	11.25	12.75
3¼ x 10... "	9.75	10.50	3¼ x 16... "	12.00	14.00
3½ x 10... "	10.50	11.50	3½ x 16... "	13.50	16.00
4 x 10... "	13.00	15.50	4 x 16... "	17.50	20.50
4½ x 10... "	20.00	22.50	4½ x 16... "	25.00	30.50
5 x 10... "	26.50	30.00	5 x 16... "	35.00	42.00
6 x 10... "	40.00	45.00	6 x 16... "	55.00	62.00
2 x 12... "	8.00	9.25	2 x 18... "	9.50	11.00
2¼ x 12... "	8.25	9.50	2¼ x 18... "	10.50	12.00
2½ x 12... "	8.50	9.75	2½ x 18... "	11.25	12.75
2¾ x 12... "	9.00	10.50	2¾ x 18... "	11.75	13.25
3 x 12... "	9.50	11.00	3 x 18... "	12.25	13.75
3¼ x 12... "	10.25	12.00	3¼ x 18... "	13.00	15.00
3½ x 12... "	11.25	13.75	3½ x 18... "	14.75	17.25
4 x 12... "	14.25	18.00	4 x 18... "	19.25	22.25
4½ x 12... "	22.00	26.00	4½ x 18... "	30.00	35.00
5 x 12... "	30.00	35.00	5 x 18... "	40.00	47.00
6 x 12... "	45.00	50.00	6 x 18... "	60.00	67.00
2 x 14... "	8.50	9.75	2 x 20... "	10.00	11.50
2¼ x 14... "	9.00	10.25	2¼ x 20... "	11.25	12.75
2½ x 14... "	9.25	10.50	2½ x 20... "	12.25	13.50
2¾ x 14... "	9.75	11.25	2¾ x 20... "	12.75	14.25
3 x 14... "	10.25	11.75	3 x 20... "	13.25	14.75
3¼ x 14... "	11.00	12.75	3¼ x 20... "	14.00	16.00
3½ x 14... "	12.25	14.75	3½ x 20... "	16.25	19.00
4 x 14... "	15.75	19.00	4 x 20... "	21.00	24.00
4½ x 14... "	24.00	28.00	4½ x 20... "	34.00	39.50
5 x 14... "	33.00	38.00	5 x 20... "	45.00	52.00
6 x 14... "	50.00	56.00	6 x 20... "	65.00	72.00

BRASS LINED CYLINDERS

12-INCH AND LONGER CYLINDER



WITH KEY CITY SAND VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two-leather plungers regularly furnished in all cylinders 12 inches long and longer.

All cylinders have brass valve seats.

Brass lined cylinders with brass cage and valve and Key City Sand Valve will be designated **No. 14.**

Brass lined cylinders with all brass plunger and Key City Sand Valve will be designated **No. 15.**

TWO-LEATHER PLUNGER

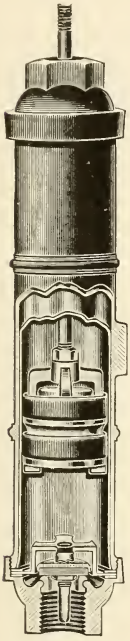
KEY CITY SAND VALVE

SIZES AND PRICES

Sizes	Price No. 14	Price No. 15	Sizes	Price No. 14	Price No. 15
2 x10	7.50	8.00	2 x14	8.50	9.75
2¼x10	7.75	8.25	2¼x14	9.00	10.25
2½x10	8.00	8.50	2½x14	9.25	10.50
2¾x10	8.50	9.00	2¾x14	9.75	11.25
3 x10	9.00	9.75	3 x14	10.25	11.75
3¼x10	9.75	10.50	3¼x14	11.00	12.75
3½x10	10.50	11.50	3½x14	12.25	14.75
4 x10	13.00	15.50	4 x14	15.75	19.00
2 x12	8.00	9.25	2 x16	9.00	10.50
2¼x12	8.25	9.50	2¼x16	9.75	11.25
2½x12	8.50	9.75	2½x16	10.25	11.75
2¾x12	9.00	10.50	2¾x16	10.75	12.25
3 x12	9.50	11.00	3 x16	11.25	12.75
3¼x12	10.25	12.00	3¼x16	12.00	14.00
3½x12	11.25	13.75	3½x16	13.50	16.00
4 x12	14.25	18.00	4 x16	17.50	20.50

In ordering above Brass Lined Cylinders with Key City Sand Valve, specify style of plunger wanted by number. Unless otherwise specified, they will be sent No. 14. We recommend the use of No. 15 in preference to No. 14, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in cost.

BRASS-LINED CYLINDERS



McDONALD BRASS PATENT VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

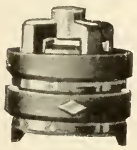
Two-leather plungers regularly furnished in all cylinders 12 inches long and longer. All cylinders have brass valve seats.

Brass-lined cylinders with brass cage and valve and McDonald brass patent valve will be designated **No. 16.**

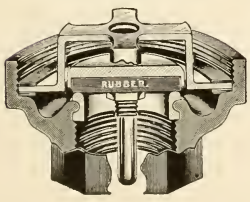
Brass-lined cylinders with all brass plunger and McDonald brass patent valve will be designated **No. 17.**

In ordering above Brass-lined Cylinders with McDonald Brass Patent Valve, specify style of plunger wanted by number. Unless otherwise specified, they will be sent No. 16. We recommend the use of No. 17 in preference to No. 16, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in cost.

TWO-LEATHER PLUNGER



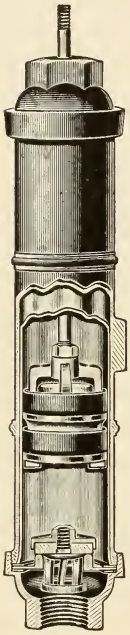
McDONALD BRASS PATENT VALVE



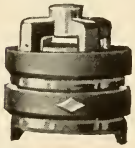
Sizes, Inches	No. 16	No. 17	Sizes, Inches	No. 16	No. 17
2 x10...each	7.50	8.00	2 x16...each	9.00	10.50
2¼x10... "	7.75	8.25	2¼x16... "	9.75	11.25
2½x10... "	8.00	8.50	2½x16... "	10.25	11.75
2¾x10... "	8.50	9.00	2¾x16... "	10.75	12.25
3 x10... "	9.00	9.75	3 x16... "	11.25	12.75
3¼x10... "	9.75	10.50	3¼x16... "	12.00	14.00
3½x10... "	10.50	11.50	3½x16... "	13.50	16.00
4 x10... "	13.00	15.50	4 x16... "	17.50	20.50
4½x10... "	20.00	22.50	4½x16... "	25.00	30.50
5 x10... "	26.50	30.00	5 x16... "	35.00	42.00
6 x10... "	40.00	45.00	6 x16... "	55.00	62.00
2 x12... "	8.00	9.25	2 x18... "	9.50	11.00
2¼x12... "	8.25	9.50	2¼x18... "	10.50	12.00
2½x12... "	8.50	9.75	2½x18... "	11.25	12.75
2¾x12... "	9.00	10.50	2¾x18... "	11.75	13.25
3 x12... "	9.50	11.00	3 x18... "	12.25	13.75
3¼x12... "	10.25	12.00	3¼x18... "	13.00	15.00
3½x12... "	11.25	13.75	3½x18... "	14.75	17.25
4 x12... "	14.25	18.00	4 x18... "	19.25	22.25
4½x12... "	22.00	26.00	4½x18... "	30.00	35.00
5 x12... "	30.00	35.00	5 x18... "	40.00	47.00
6 x12... "	45.00	50.00	6 x18... "	60.00	67.00
2 x14... "	8.50	9.75	2 x20... "	10.00	11.50
2¼x14... "	9.00	10.25	2¼x20... "	11.25	12.75
2½x14... "	9.25	10.50	2½x20... "	12.25	13.50
2¾x14... "	9.75	11.25	2¾x20... "	12.75	14.25
3 x14... "	10.25	11.75	3 x20... "	13.25	14.75
3¼x14... "	11.00	12.75	3¼x20... "	14.00	16.00
3½x14... "	12.25	14.75	3½x20... "	16.25	19.00
4 x14... "	15.75	19.00	4 x20... "	21.00	24.00
4½x14... "	24.00	28.00	4½x20... "	34.00	39.50
5 x14... "	33.00	38.00	5 x20... "	45.00	52.00
6 x14... "	50.00	56.00	6 x20... "	65.00	72.00

BRASS-LINED CYLINDERS

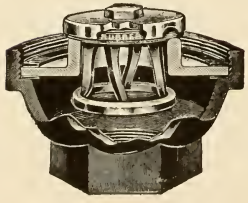
12-INCH AND LONGER CYLINDER



TWO-LEATHER PLUNGER



DIAMOND WING CHECK VALVE



WITH DIAMOND WING CHECK VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two-leather plungers regularly furnished in all cylinders 12 inches long and longer.

Brass-lined cylinders with brass cage and valve and diamond wing check valve will be designated **No. 18.**

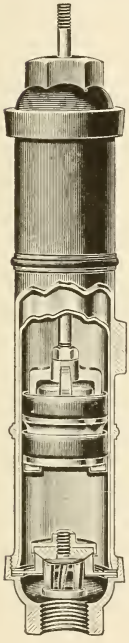
Brass-lined cylinders with all brass plunger and diamond wing check valve will be designated **No. 19.**

In ordering above Brass-lined Cylinders with Diamond Wing Check Valve, specify style of Plunger wanted by number. Unless otherwise specified, they will be sent No. 18. We recommend the use of No. 19 in preference to No. 18, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in price.

Sizes, Inches		No. 18	No. 19	Sizes, Inches		No. 18	No. 19
2 x10	each	7.50	8.00	2 x16	each	9.00	10.50
2¼x10	"	7.75	8.25	2¼x16	"	9.75	11.25
2½x10	"	8.00	8.50	2½x16	"	10.25	11.75
2¾x10	"	8.50	9.00	2¾x16	"	10.75	12.25
3 x10	"	9.00	9.75	3 x16	"	11.25	12.75
3¼x10	"	9.75	10.50	3¼x16	"	12.00	14.00
3½x10	"	10.50	11.50	3½x16	"	13.50	16.00
4 x10	"	13.00	15.50	4 x16	"	17.50	20.50
2 x12	"	8.00	9.25	2 x18	"	9.50	11.00
2¼x12	"	8.25	9.50	2¼x18	"	10.50	12.00
2½x12	"	8.50	9.75	2½x18	"	11.25	12.75
2¾x12	"	9.00	10.50	2¾x18	"	11.75	13.25
3 x12	"	9.50	11.00	3 x18	"	12.25	13.75
3¼x12	"	10.25	12.00	3¼x18	"	13.00	15.00
3½x12	"	11.25	13.75	3½x18	"	14.75	17.25
4 x12	"	14.25	18.00	4 x18	"	19.25	22.25
2 x14	"	8.50	9.75	2 x20	"	10.00	11.50
2¼x14	"	9.00	10.25	2¼x20	"	11.25	12.75
2½x14	"	9.25	10.50	2½x20	"	12.25	13.50
2¾x14	"	9.75	11.25	2¾x20	"	12.75	14.25
3 x14	"	10.25	11.75	3 x20	"	13.25	14.75
3¼x14	"	11.00	12.75	3¼x20	"	14.00	16.00
3½x14	"	12.25	14.75	3½x20	"	16.25	19.00
4 x14	"	15.75	19.00	4 x20	"	21.00	24.00

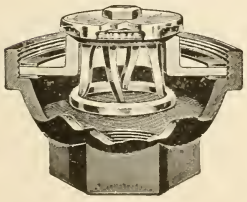
BRASS-LINED CYLINDERS

12-INCH AND LONGER CYLINDER



TWO-LEATHER PLUNGER

IOWA BEVEL SEAT CHECK VALVE



WITH IOWA BEVEL SEAT CHECK VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two-leather plungers regularly furnished in all cylinders 12 inches long and longer.

Brass-Lined cylinders with brass cage and valve and Iowa bevel seat check valve will be designated **No. 20.**

Brass-Lined cylinders with all brass plunger and Iowa bevel seat check valve will be designated **No. 21.**

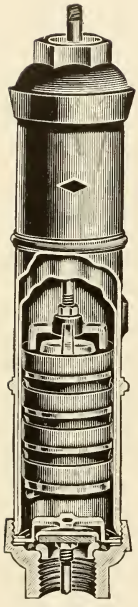
In ordering these Brass-Lined Cylinders with Iowa Bevel Seat Check Valve, specify style of Plunger wanted by number. Unless otherwise specified they will be sent No. 20. We recommend No. 21 in preference to No. 20, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in price.

Sizes, Inches		No. 20	No. 21	Sizes, Inches		No. 20	No. 21
2 x10...	each	7.50	8.00	2 x16...	each	9.00	10.50
2¼x10...	"	7.75	8.25	2¼x16...	"	9.75	11.25
2½x10...	"	8.00	8.50	2½x16...	"	10.25	11.75
2¾x10...	"	8.50	9.00	2¾x16...	"	10.75	12.25
3 x10...	"	9.00	9.75	3 x16...	"	11.25	12.75
3¼x10...	"	9.75	10.50	3¼x16 ..	"	12.00	14.00
3½x10...	"	10.50	11.50	3½x16...	"	13.50	16.00
4 x10...	"	13.00	15.50	4 x16...	"	17.50	20.50
2 x12...	"	8.00	9.25	2 x18...	"	9.50	11.00
2¼x12...	"	8.25	9.50	2¼x18...	"	10.50	12.00
2½x12...	"	8.50	9.75	2½x18...	"	11.25	12.75
2¾x12...	"	9.00	10.50	2¾x18...	"	11.75	13.25
3 x12...	"	9.50	11.00	3 x18...	"	12.25	13.75
3¼x12...	"	10.25	12.00	3¼x18...	"	13.00	15.00
3½x12...	"	11.25	13.75	3½x18...	"	14.75	17.25
4 x12...	"	14.25	18.00	4 x18...	"	19.25	22.25
2 x14...	"	8.50	9.75	2 x20...	"	10.00	11.50
2¼x14...	"	9.00	10.25	2¼x20...	"	11.25	12.75
2½x14...	"	9.25	10.50	2½x20...	"	12.25	13.50
2¾x14...	"	9.75	11.25	2¾x20...	"	12.75	14.25
3 x14...	"	10.25	11.75	3 x20...	"	13.25	14.75
3¼x14...	"	11.00	12.75	3¼x20...	"	14.00	16.00
3½x14...	"	12.25	14.75	3½x20...	"	16.25	19.00
4 x14...	"	15.75	19.00	4 x20...	"	21.00	24.00

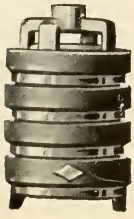
BRASS-LINED CYLINDERS

WITH FOUR-LEATHER PLUNGERS, IRON OR BRASS

AND McDONALD BRASS PATENT VALVE, DIAMOND WING CHECK VALVE, OR IOWA BEVEL SEAT CHECK VALVE



FOUR-LEATHER PLUNGER



Brass-lined cylinders, four-leather iron plunger, brass cage and valve, and McDonald brass patent valve will be designated **No. 22.**

Brass-lined cylinders, four-leather iron plunger, brass cage and valve, and diamond wing check valve will be designated **No. 23.**

Brass-lined cylinders, four-leather iron plunger, brass cage and valve, and Iowa bevel seat check valve will be designated **No. 24.**

Brass-lined cylinders, four-leather brass plunger, with McDonald brass patent valve will be designated **No. 25.**

Brass-lined cylinders, four-leather brass plunger with diamond wing check valve will be designated **No. 26.**

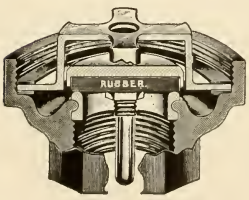
Brass-lined cylinders, four-leather brass plunger with Iowa bevel seat check valve will be designated **No. 27.**

SIZES AND PRICES

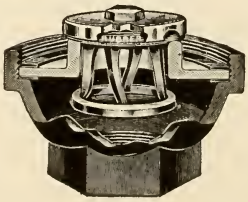
Sizes	Prices No. 22 No. 23 No. 24	Prices No. 25 No. 26 No. 27	Sizes	Prices No. 22 No. 23 No. 24	Prices No. 25 No. 26 No. 27
2 x14	8.50	9.75	2 x18	9.50	11.00
2¼x14	9.00	10.25	2¼x18	10.50	12.00
2½x14	9.25	10.50	2½x18	11.25	12.75
2¾x14	9.75	11.25	2¾x18	11.75	13.25
3 x14	10.25	11.75	3 x18	12.25	13.75
3¼x14	11.00	12.75	3¼x18	13.00	15.00
3½x14	12.25	14.75	3½x18	14.75	17.25
4 x14	15.75	19.00	4 x18	19.25	22.25
2 x16	9.00	10.50	2 x20	10.00	11.50
2¼x16	9.75	11.25	2¼x20	11.25	12.75
2½x16	10.25	11.75	2½x20	12.25	13.50
2¾x16	10.75	12.25	2¾x20	12.75	14.25
3 x16	11.25	12.75	3 x20	13.25	14.75
3¼x16	12.00	14.00	3¼x20	14.00	16.00
3½x16	13.50	16.00	3½x20	16.25	19.00
4 x16	17.50	20.50	4 x20	21.00	24.00

In ordering any of above Brass-Lined Cylinders, specify style of Plunger and Check Valve wanted by number. We recommend the use of **ALL BRASS PLUNGER** as we believe it is worth much more than its small increased cost as compared with iron plunger.

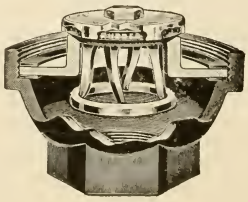
McDONALD BRASS PATENT VALVE



DIAMOND WING CHECK VALVE



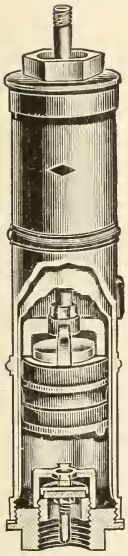
IOWA BEVEL SEAT CHECK VALVE



BRASS-LINED CYLINDERS, FLUSH CAP

WITH McDONALD BRASS PATENT VALVE

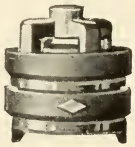
IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER



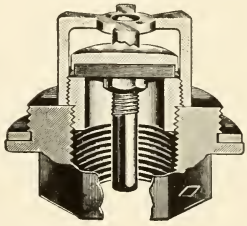
Two-leather plunger regularly furnished in these cylinders. All cylinders have brass valve seats.

Brass-lined flush cap cylinders with brass cage and valve and McDonald brass patent valve will be designated **No. 28.**

Brass-lined flush cap cylinders with all brass plunger and McDonald brass patent valve will be designated **No. 29.**



McDONALD BRASS PATENT VALVE

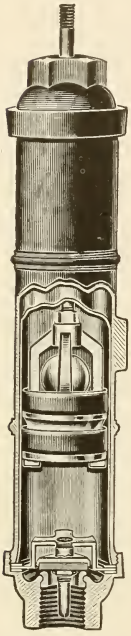


SIZES AND PRICES

Sizes	Price No. 28	Price No. 29	Sizes	Price No. 28	Price No. 29
2 x14	8.50	9.75	2 x18	9.50	11.00
2¼x14	9.00	10.25	2¼x18	10.50	12.00
2½x14	9.25	10.50	2½x18	11.25	12.75
2¾x14	9.75	11.25	2¾x18	11.75	13.25
3 x14	10.25	11.75	3 x18	12.25	13.75
3¼x14	11.00	12.75	3¼x18	13.00	15.00
3½x14	12.25	14.75	3½x18	14.75	17.25
4 x14	15.75	19.00	4 x18	19.25	22.25
2 x16	9.00	10.50	2 x20	10.00	11.50
2¼x16	9.75	11.25	2¼x20	11.25	12.75
2½x16	10.25	11.75	2½x20	12.25	13.50
2¾x16	10.75	12.25	2¾x20	12.75	14.25
3 x16	11.25	12.75	3 x20	13.25	14.75
3¼x16	12.00	14.00	3¼x20	14.00	16.00
3½x16	13.50	16.00	3½x20	16.25	19.00
4 x16	17.50	20.50	4 x20	21.00	24.00

In ordering above Brass Lined Flush Cap Cylinders with McDonald Brass Patent Valve, specify style of Plunger wanted by number. Unless otherwise specified No. 28 will be sent. We recommend No. 29 in preference to No. 28, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in price.

CUT SHOWS
No. 30



BRASS LINED CYLINDERS

WITH McDONALD BRASS PATENT VALVE

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

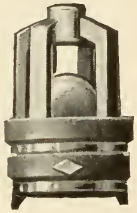
All cylinders have brass valve seats.

Brass lined cylinders with brass two-leather bronze ball plunger and McDonald brass patent valve will be designated **No. 30.**

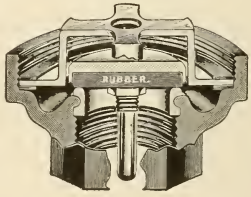
Brass lined cylinders with brass four-leather bronze ball plunger and McDonald brass patent valve will be designated **No. 31.**

FOUR LEATHER PLUNGER

TWO LEATHER PLUNGER



McDONALD BRASS PATENT VALVE



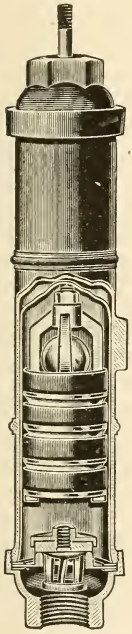
SIZES AND PRICES

Sizes	Price No. 30	Sizes	Price Nos. 30 and 31
2 x14	9.75	2 x18	11.00
2¼x14	10.25	2¼x18	12.00
2½x14	10.50	2½x18	12.75
2¾x14	11.25	2¾x18	13.25
3 x14	11.75	3 x18	13.75
3¼x14	12.75	3¼x18	15.00
3½x14	14.75	3½x18	17.25
4 x14	19.00	4 x18	22.25
	Nos. 30 and 31		
2 x16	10.50	2 x20	11.50
2¼x16	11.25	2¼x20	12.75
2½x16	11.75	2½x20	13.50
2¾x16	12.25	2¾x20	14.25
3 x16	12.75	3 x20	14.75
3¼x16	14.00	3¼x20	16.00
3½x16	16.00	3½x20	19.00
4 x16	20.50	4 x20	24.00

In ordering above Brass Lined Cylinders with Brass Plunger with Bronze Ball and McDonald Brass Patent Valve, specify style of Plunger wanted by number. Unless otherwise specified No. 31 will be sent on orders for Cylinders 16 inches long or longer.

BRASS-LINED CYLINDERS

CUT SHOWS
No. 33



WITH DIAMOND WING CHECK VALVE

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

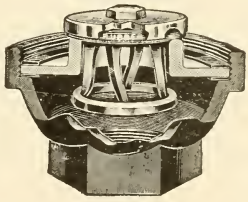
Brass-lined cylinders with brass two-leather bronze ball plunger, and diamond wing check valve will be designated **No. 32.**

Brass-lined cylinders with brass four-leather bronze ball plunger, and diamond wing check valve will be designated **No. 33.**

TWO-LEATHER PLUNGER

FOUR-LEATHER PLUNGER

DIAMOND WING CHECK VALVE



SIZES AND PRICES

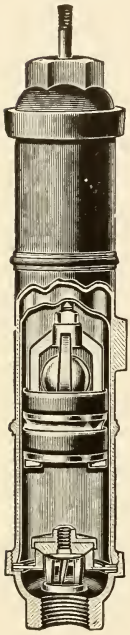
Sizes	Price No. 32
2 x14	9.75
2¼x14	10.25
2½x14	10.50
2¾x14	11.25
3 x14	11.75
3¼x14	12.75
3½x14	14.75
4 x14	19.00
Nos. 32 and 33	
2 x16	10.50
2¼x16	11.25
2½x16	11.75
2¾x16	12.25
3 x16	12.75
3¼x16	14.00
3½x16	16.00
4 x16	20.50

Sizes	Price Nos. 32 and 33
2 x18	11.00
2¼x18	12.00
2½x18	12.75
2¾x18	13.25
3 x18	13.75
3¼x18	15.00
3½x18	17.25
4 x18	22.25
2 x20	11.50
2¼x20	12.75
2½x20	13.50
2¾x20	14.25
3 x20	14.75
3¼x20	16.00
3½x20	19.00
4 x20	24.00

In ordering above Brass-Lined Cylinders with Brass Plunger with Bronze Ball and Diamond Wing Check Valve, specify style of Plunger wanted by number. Unless otherwise specified No. 33 will be sent on orders for Cylinders 16 inches long or longer.

BRASS-LINED CYLINDERS

CUT SHOWS
No. 34



WITH IOWA BEVEL SEAT CHECK VALVE

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

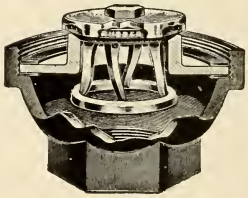
Brass-lined cylinders with brass two-leather bronze ball plunger, and Iowa bevel seat check valve are designated **No. 34.**

Brass-lined cylinders with brass four-leather bronze ball plunger, and Iowa bevel seat check valve are designated **No. 35.**

TWO-LEATHER PLUNGER

FOUR-LEATHER PLUNGER

IOWA BEVEL SEAT CHECK VALVE



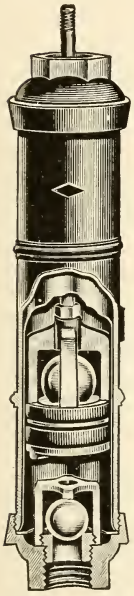
SIZES AND PRICES

Sizes	Price No. 34
2 x14	9.75
2¼x14	10.25
2½x14	10.50
2¾x14	11.25
3 x14	11.75
3¼x14	12.75
3½x14	14.75
4 x14	19.00
	Nos. 34 and 35
2 x16	10.50
2¼x16	11.25
2½x16	11.75
2¾x16	12.25
3 x16	12.75
3¼x16	14.00
3½x16	16.00
4 x16	20.50

Sizes	Price Nos. 34 and 35
2 x18	11.00
2¼x18	12.00
2½x18	12.75
2¾x18	13.25
3 x18	13.75
3¼x18	15.00
3½x18	17.25
4 x18	22.25
2 x20	11.50
2¼x20	12.75
2½x20	13.50
2¾x20	14.25
3 x20	14.75
3¼x20	16.00
3½x20	19.00
4 x20	24.00
.....	.....

In ordering above Brass-Lined Cylinders with Brass Plungers with Bronze Ball and Iowa Bevel Seat Check Valve, specify style of Plunger wanted by number. Unless otherwise ordered No. 35 will be sent on orders for Cylinders 16 inches long and longer.

CUT SHOWS
No. 36



BRASS-LINED CYLINDERS

WITH BRONZE BALL CHECK VALVES

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

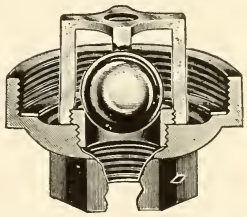
Brass-lined cylinders with brass two-leather bronze ball plunger, and with bronze ball check valve will be designated **No. 36.**

Brass-lined cylinders with brass four-leather bronze ball plunger, and with bronze ball check valve will be designated as **No. 37.**

TWO-LEATHER PLUNGER

FOUR-LEATHER PLUNGER

BRONZE BALL CHECK VALVE



SIZES AND PRICES

Sizes	Price No. 36
2 x14	9.75
2¼x14	10.25
2½x14	10.50
2¾x14	11.25
3 x14	11.75
3¼x14	12.75
3½x14	14.75
4 x14	19.00
	Nos. 36 and 37
2 x16	10.50
2¼x16	11.25
2½x16	11.75
2¾x16	12.25
3 x16	12.75
3¼x16	14.00
3½x16	16.00
4 x16	20.50

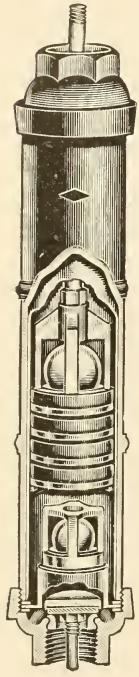
Sizes	Price Nos. 36 and 37
2 x18	11.00
2¼x18	12.00
2½x18	12.75
2¾x18	13.25
3 x18	13.75
3¼x18	15.00
3½x18	17.25
4 x18	22.25
2 x20	11.50
2¼x20	12.75
2½x20	13.50
2¾x20	14.25
3 x20	14.75
3¼x20	16.00
3½x20	19.00
4 x20	24.00

In ordering above Brass-Lined Cylinders with bronze ball plunger and bronze ball check valves, specify style of plunger wanted by number. Unless otherwise specified No. 37 will be sent on orders for cylinders 16 inches and longer. We recommend No. 37 as one of our best deep well cylinders, when a 1¼ patent valve foot valve is suspended about 1 foot below cylinder.

BRASS-LINED CYLINDERS

WITH BRONZE BALL AND RUBBER POPPET DOUBLE CHECK VALVE

CUT SHOWS No. 38 FOUR-LEATHER



TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

Cylinders illustrated and listed on this page are the best we make for very deep wells.

Brass four-leather plunger with bronze ball is our best plunger for deep wells, and has proven its worth beyond question.

The double check valve is a bronze check valve above a brass poppet with rubber disc inserted in it. The bronze ball is turned true as is the brass seat it rests on. The brass poppet with rubber disc rests on a brass valve seat in the bottom cap.

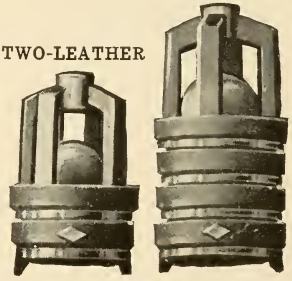
It is almost impossible for this double check valve to leak and we can recommend it as the best cylinder for deep wells.

Brass Lined Cylinders with Brass Two-leather Bronze Ball Plunger, and Bronze Ball and Poppet Double Check Valve will be designated **No. 38 TWO-LEATHER.**

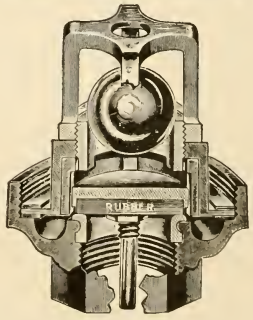
Brass Lined Cylinders with Brass Four-Leather Bronze Ball Plunger and Bronze Ball and Poppet Double Check Valve will be designated **No. 38 FOUR-LEATHER.**

FOUR-LEATHER

TWO-LEATHER

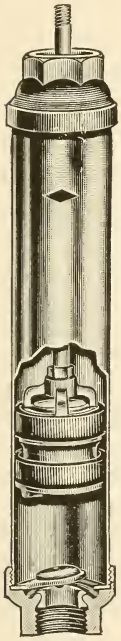


Sizes	Price No. 38	
2 x16	10.50	Length Stroke 8 Inches
2¼x16	11.25	
2½x16	11.75	
2¾x16	12.25	
3 x16	12.75	
3¼x16	14.00	
3½x16	16.00	
2 x18	11.00	Length Stroke 10 Inches
2¼x18	12.00	
2½x18	12.75	
2¾x18	13.25	
3 x18	13.75	
3¼x18	15.00	
3½x18	17.25	
2 x20	11.50	Length Stroke 12 Inches
2¼x20	12.75	
2½x20	13.50	
2¾x20	14.25	
3 x20	14.75	
3¼x20	16.00	
3½x20	19.00	



BRONZE BALL AND POPPET DOUBLE CHECK

BRASS BODY CYLINDERS



WITH IRON CAPS AND LEATHER CHECK VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two leather plungers regularly furnished in all cylinders 12 inches long and longer.

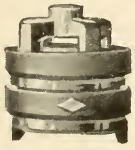
All cylinders have brass valve seats.

Brass body cylinders with brass cage and valve, and leather check valve will be designated **No. 39.**

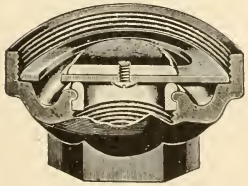
Brass body cylinders with all brass plungers and leather check valve will be designated **No. 40.**

In ordering above Brass Body Cylinders with leather check valves specify style of plunger wanted by number. Unless otherwise ordered, No. 39 will be sent. We recommend the use of No. 40 instead of No. 39, as we believe the all brass plunger is worth much more than the small difference in price.

TWO-LEATHER PLUNGER



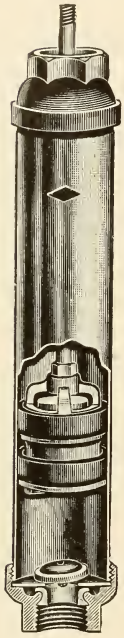
SECTIONAL VIEW OF LOWER CAP AND LEATHER VALVE



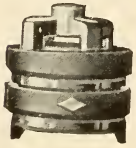
Size, Inches		No. 39	No. 40	Size, Inches		No. 39	No. 40
2 x10	each	7.50	8.00	3 x16	each	11.25	12.75
2¼x10	"	7.75	8.25	3¼x16	"	12.00	14.00
2½x10	"	8.00	8.50	3½x16	"	13.50	16.00
2¾x10	"	8.50	9.00	4 x16	"	17.50	20.50
3 x10	"	9.00	9.75	4½x16	"	25.00	30.50
3¼x10	"	9.75	10.50	5 x16	"	35.00	42.00
3½x10	"	10.50	11.50	6 x16	"	55.00	62.00
4 x10	"	13.00	15.50				
4½x10	"	20.00	22.50	2 x18	"	9.50	11.00
5 x10	"	26.50	30.00	2¼x18	"	10.50	12.00
6 x10	"	40.00	45.00	2½x18	"	11.25	12.75
				2¾x18	"	11.75	13.25
2 x12	"	8.00	9.25	3 x18	"	12.25	13.75
2¼x12	"	8.25	9.50	3¼x18	"	13.00	15.00
2½x12	"	8.50	9.75	3½x18	"	14.75	17.25
2¾x12	"	9.00	10.50	4 x18	"	19.25	22.25
3 x12	"	9.50	11.00	4½x18	"	30.00	35.00
3¼x12	"	10.25	12.00	5 x18	"	40.00	47.00
3½x12	"	11.25	13.75	6 x18	"	60.00	67.00
4 x12	"	14.25	18.00				
4½x12	"	22.00	26.00	2 x20	"	10.00	11.50
5 x12	"	30.00	35.00	2¼x20	"	11.25	12.75
6 x12	"	45.00	50.00	2½x20	"	12.25	13.50
				2¾x20	"	12.75	14.25
2 x14	"	8.50	9.75	3 x20	"	13.25	14.75
2¼x14	"	9.00	10.25	3¼x20	"	14.00	16.00
2½x14	"	9.25	10.50	3½x20	"	16.25	19.00
2¾x14	"	9.75	11.25	4 x20	"	21.00	24.00
3 x14	"	10.25	11.75	4½x20	"	34.00	39.50
3¼x14	"	11.00	12.75	5 x20	"	45.00	52.00
3½x14	"	12.25	14.75	6 x20	"	65.00	72.00
4 x14	"	15.75	19.00				
4½x14	"	24.00	28.00	2½x24	"	14.25	15.00
5 x14	"	33.00	38.00	2¾x24	"	14.75	16.00
6 x14	"	50.00	56.00	3 x24	"	15.25	16.75
				3½x24	"	19.25	22.50
2 x16	"	9.00	10.50	4 x24	"	24.50	27.50
2¼x16	"	9.75	11.25	4½x24	"	42.00	48.50
2½x16	"	10.25	11.75	5 x24	"	55.00	62.00
2¾x16	"	10.75	12.25	6 x24	"	75.00	82.00

BRASS BODY CYLINDERS

WITH IRON CAPS AND KEY CITY SAND VALVE



TWO-LEATHER PLUNGER



KEY CITY SAND VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two-leather plungers regularly furnished in all cylinders 12 inches long and longer.

All cylinders have brass valve seats.

Brass body cylinders with brass cage and valve and Key City sand valve will be designated **No. 41.**

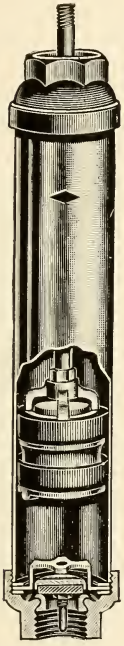
Brass body cylinders with all brass plunger and Key City sand valve will be designated **No. 42.**

In ordering above Brass Body Cylinders with Key City sand valve, specify style of plunger wanted by number. Unless otherwise specified No. 41 will be sent. We recommend the use of No. 42, instead of No. 41, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in price.

Sizes, Inches	No. 41	No. 42
2 x 10....each	7.50	8.00
2¼ x 10.... "	7.75	8.25
2½ x 10.... "	8.00	8.50
2¾ x 10.... "	8.50	9.00
3 x 10.... "	9.00	9.75
3¼ x 10.... "	9.75	10.50
3½ x 10.... "	10.50	11.50
4 x 10.... "	13.00	15.50
2 x 12.... "	8.00	9.25
2¼ x 12.... "	8.25	9.50
2½ x 12.... "	8.50	9.75
2¾ x 12.... "	9.00	10.50
3 x 12.... "	9.50	11.00
3¼ x 12.... "	10.25	12.00
3½ x 12.... "	11.25	13.75
4 x 12.... "	14.25	18.00
2 x 14.... "	8.50	9.75
2¼ x 14.... "	9.00	10.25
2½ x 14.... "	9.25	10.50
2¾ x 14.... "	9.75	11.25
3 x 14.... "	10.25	11.75
3¼ x 14.... "	11.00	12.75
3½ x 14.... "	12.25	14.75
4 x 14.... "	15.75	19.00
2 x 16.... "	9.00	10.50
2¼ x 16.... "	9.75	11.25
2½ x 16.... "	10.25	11.75
2¾ x 16.... "	10.75	12.25
3 x 16....each	11.25	12.75
3¼ x 16.... "	12.00	14.00
3½ x 16.... "	13.50	16.00
4 x 16.... "	17.50	20.50
2 x 18.... "	9.50	11.00
2¼ x 18.... "	10.50	12.00
2½ x 18.... "	11.25	12.75
2¾ x 18.... "	11.75	13.25
3 x 18.... "	12.25	13.75
3¼ x 18.... "	13.00	15.00
3½ x 18.... "	14.75	17.25
4 x 18.... "	19.25	22.25
2 x 20.... "	10.00	11.50
2¼ x 20.... "	11.25	12.75
2½ x 20.... "	12.25	13.50
2¾ x 20.... "	12.75	14.25
3 x 20.... "	13.25	14.75
3¼ x 20.... "	14.00	16.00
3½ x 20.... "	16.25	19.00
4 x 20.... "	21.00	24.00
2½ x 24.... "	14.25	15.00
2¾ x 24.... "	14.75	16.00
3 x 24.... "	15.25	16.75
3½ x 24.... "	19.25	22.50
4 x 24.... "	24.50	27.50

BRASS BODY CYLINDERS

WITH IRON CAPS AND McDONALD BRASS PATENT VALVE



IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two-Leather plungers regularly furnished in all cylinders 12 inches long and longer.

All cylinders have brass valve seats.

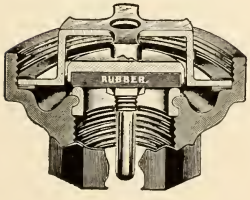
Brass body cylinders with brass cage and valve and McDonald brass patent valve will be designated **No. 43.**

Brass body cylinders with all brass plunger and McDonald brass patent valve will be designated **No. 44.**

In ordering above Brass Body Cylinders with McDonald brass patent valve specify style of plunger wanted by number. Unless otherwise specified, No. 43 will be sent. We recommend the use of No. 44 instead of No. 43, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in price.

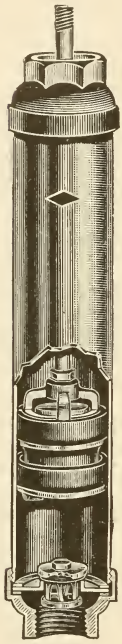
TWO-LEATHER PLUNGER

McDONALD BRASS PATENT VALVE



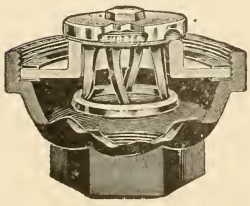
Sizes, Inches	No. 43	No. 44	Sizes, Inches	No. 43	No. 44
2 x10, each	7.50	8.00	3 x16, each	11.25	12.75
2¼x10 "	7.75	8.25	3¼x16 "	12.00	14.00
2½x10 "	8.00	8.50	3½x16 "	13.50	16.00
2¾x10 "	8.50	9.00	4 x16 "	17.50	20.50
3 x10 "	9.00	9.75	4½x16 "	25.00	30.50
3¼x10 "	9.75	10.50	5 x16 "	35.00	42.00
3½x10 "	10.50	11.50	6 x16 "	55.00	62.00
4 x10 "	13.00	15.50	2 x18 "	9.50	11.00
4½x10 "	20.00	22.50	2¼x18 "	10.50	12.00
5 x10 "	26.50	30.00	2½x18 "	11.25	12.75
6 x10 "	40.00	45.00	2¾x18 "	11.75	13.25
2 x12 "	8.00	9.25	3 x18 "	12.25	13.75
2¼x12 "	8.25	9.50	3¼x18 "	13.00	15.00
2½x12 "	8.50	9.75	3½x18 "	14.75	17.25
2¾x12 "	9.00	10.50	4 x18 "	19.25	22.25
3 x12 "	9.50	11.00	4½x18 "	30.00	35.00
3¼x12 "	10.25	12.00	5 x18 "	40.00	47.00
3½x12 "	11.25	13.75	6 x18 "	60.00	67.00
4 x12 "	14.25	18.00	2 x20 "	10.00	11.50
4½x12 "	22.00	26.00	2¼x20 "	11.25	12.75
5 x12 "	30.00	35.00	2½x20 "	12.25	13.50
6 x12 "	45.00	50.00	2¾x20 "	12.75	14.25
2 x14 "	8.50	9.75	3 x20 "	13.25	14.75
2¼x14 "	9.00	10.25	3¼x20 "	14.00	16.00
2½x14 "	9.25	10.50	3½x20 "	16.25	19.00
2¾x14 "	9.75	11.25	4 x20 "	21.00	24.00
3 x14 "	10.25	11.75	4½x20 "	34.00	39.50
3¼x14 "	11.00	12.75	5 x20 "	45.00	52.00
3½x14 "	12.25	14.75	6 x20 "	65.00	72.00
4 x14 "	15.75	19.00	2½x24 "	14.25	15.00
4½x14 "	24.00	28.00	2¾x24 "	14.75	16.00
5 x14 "	33.00	38.00	3 x24 "	15.25	16.75
6 x14 "	50.00	56.00	3½x24 "	19.25	22.50
2 x16 "	9.00	10.50	4 x24 "	24.50	27.50
2¼x16 "	9.75	11.25	4½x24 "	42.00	48.50
2½x16 "	10.25	11.75	5 x24 "	55.00	62.00
2¾x16 "	10.75	12.25	6 x24 "	75.00	82.00

BRASS BODY CYLINDERS



TWO-LEATHER PLUNGER

DIAMOND WING CHECK VALVE



WITH IRON CAPS AND DIAMOND WING CHECK VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two-leather plungers regularly furnished in all cylinders 12 inches long and longer.

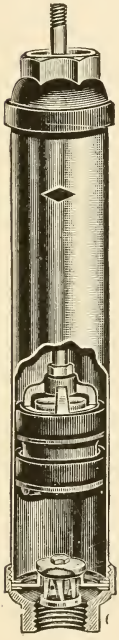
Brass body cylinders with brass cage and valve and diamond wing check valve will be designated **No. 45.**

Brass body cylinders with all brass plunger and diamond wing check valve will be designated **No. 46.**

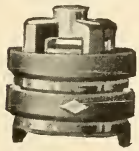
In ordering above Brass Body Cylinders with Diamond Wing Check Valve, specify style of plunger wanted by number. Unless otherwise specified No. 45 will be sent. We recommend the use of No. 46 in preference to No. 45 as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in cost.

Sizes, Inches		No. 45	No. 46
3 x10	each	9.00	9.75
3¼x10	"	9.75	10.50
3½x10	"	10.50	11.50
4 x10	"	13.00	15.50
2 x12	"	8.00	9.25
2¼x12	"	8.25	9.50
2½x12	"	8.50	9.75
2¾x12	"	9.00	10.50
3 x12	"	9.50	11.00
3¼x12	"	10.25	12.00
3½x12	"	11.25	13.75
4 x12	"	14.25	18.00
2 x14	"	8.50	9.75
2¼x14	"	9.00	10.25
2½x14	"	9.25	10.50
2¾x14	"	9.75	11.25
3 x14	"	10.25	11.75
3¼x14	"	11.00	12.75
3½x14	"	12.25	14.75
4 x14	"	15.75	19.00
2 x16	"	9.00	10.50
2¼x16	"	9.75	11.25
2½x16	"	10.25	11.75
2¾x16	"	10.75	12.25
3 x16	"	11.25	12.75
3¼x16	each	12.00	14.00
3½x16	"	13.50	16.00
4 x16	"	17.50	20.50
2 x18	"	9.50	11.00
2¼x18	"	10.50	12.00
2½x18	"	11.25	12.75
2¾x18	"	11.75	13.25
3 x18	"	12.25	13.75
3¼x18	"	13.00	15.00
3½x18	"	14.75	17.25
4 x18	"	19.25	22.25
2 x20	"	10.00	11.50
2¼x20	"	11.25	12.75
2½x20	"	12.25	13.50
2¾x20	"	12.75	14.25
3 x20	"	13.25	14.75
3¼x20	"	14.00	16.00
3½x20	"	16.25	19.00
4 x20	"	21.00	24.00
2½x24	"	14.25	15.00
2¾x24	"	14.75	16.00
3 x24	"	15.25	16.75
3½x24	"	19.25	22.50
4 x24	"	24.50	27.50
.....	....	....	....

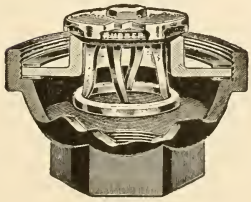
BRASS BODY CYLINDERS



TWO-LEATHER PLUNGER



IOWA BEVEL SEAT CHECK VALVE



WITH IRON CAPS AND IOWA BEVEL SEAT CHECK VALVES

IRON PLUNGER, BRASS CAGE OR VALVE, OR ALL BRASS PLUNGER

Two-leather plungers regularly furnished in all cylinders 12 inches long and longer.

Brass body cylinders with brass cage and valve and Iowa bevel seat check valve will be designated **No. 47.**

Brass body cylinders with all brass plunger and Iowa bevel seat check valve will be designated **No. 48.**

In ordering Brass Body Cylinders with Iowa bevel seat check valve, specify style of plunger wanted by number. Unless otherwise specified No. 47 will be sent. We recommend the use of No. 48 in preference to No. 47, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in cost.

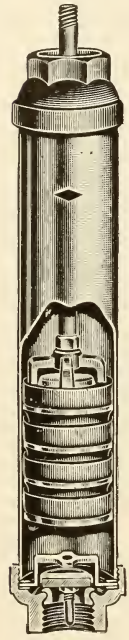
Sizes, Inches	No. 47	No. 48	Sizes, Inches	No. 47	No. 48
3 x10.. each	9.00	9.75	3 x16.. each	11.25	12.75
3¼x10.. "	9.75	10.50	3¼x16.. "	12.00	14.00
3½x10.. "	10.50	11.50	3½x16.. "	13.50	16.00
4 x10.. "	13.00	15.50	4 x16.. "	17.50	20.50
2 x12.. "	8.00	9.25	2 x18.. "	9.50	11.00
2¼x12.. "	8.25	9.50	2¼x18.. "	10.50	12.00
2½x12.. "	8.50	9.75	2½x18.. "	11.25	12.75
2¾x12.. "	9.00	10.50	2¾x18.. "	11.75	13.25
3 x12.. "	9.50	11.00	3 x18.. "	12.25	13.75
3¼x12.. "	10.25	12.00	3¼x18.. "	13.00	15.00
3½x12.. "	11.25	13.75	3½x18.. "	14.75	17.25
4 x12.. "	14.25	18.00	4 x18.. "	19.25	22.25
2 x14.. "	8.50	9.75	2 x20.. "	10.00	11.50
2¼x14.. "	9.00	10.25	2¼x20.. "	11.25	12.75
2½x14.. "	9.25	10.50	2½x20.. "	12.25	13.50
2¾x14.. "	9.75	11.25	2¾x20.. "	12.75	14.25
3 x14.. "	10.25	11.75	3 x20.. "	13.25	14.75
3¼x14.. "	11.00	12.75	3¼x20.. "	14.00	16.00
3½x14.. "	12.25	14.75	3½x20.. "	16.25	19.00
4 x14.. "	15.75	19.00	4 x20.. "	21.00	24.00
2 x16.. "	9.00	10.50	2½x24.. "	14.25	15.00
2¼x16.. "	9.75	11.25	2¾x24.. "	14.75	16.00
2½x16.. "	10.25	11.75	3 x24.. "	15.25	16.75
2¾x16.. "	10.75	12.25	3½x24.. "	19.25	22.50
			4 x24.. "	24.50	27.50

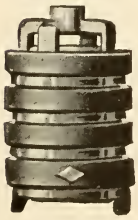
BRASS BODY CYLINDERS, IRON CAP

WITH FOUR-LEATHER PLUNGERS, IRON OR BRASS

AND McDONALD BRASS PATENT VALVE, DIAMOND WING CHECK VALVE, OR IOWA BEVEL SEAT CHECK VALVE

BRASS BODY CYLINDER OUTSIDE CAP





Brass body cylinders, four-leather iron plungers, brass cage and valve, and McDonald brass patent valve will be designated **No. 49.**

Same, only with diamond wing check valve will be designated **No. 50.**

Same, only with Iowa bevel seat check valve will be designated **No. 51.**

Brass body cylinder with four-leather Brass plungers and McDonald brass patent valve will be designated **No. 52.**

Same, only with diamond wing check valve will be designated **No. 53.**

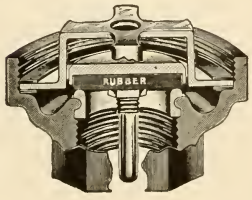
Same, only with Iowa bevel seat check valve will be designated **No. 54.**

SIZES AND PRICES

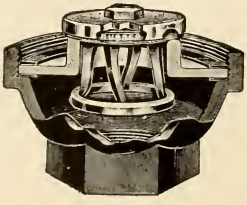
Sizes	Prices No. 49 No. 50 No. 51	Prices No. 52 No. 53 No. 54
2 x14	8.50	9.75
2¼x14	9.00	10.25
2½x14	9.25	10.50
2¾x14	9.75	11.25
3 x14	10.25	11.75
3¼x14	11.00	12.75
3½x14	12.25	14.75
4 x14	15.75	19.00
2 x16	9.00	10.50
2¼x16	9.75	11.25
2½x16	10.25	11.75
2¾x16	10.75	12.25
3 x16	11.25	12.75
3¼x16	12.00	14.00
3½x16	13.50	16.00
4 x16	17.50	20.50
2 x18	9.50	11.00
2¼x18	10.50	12.00
2½x18	11.25	12.75
2¾x18	11.75	13.25
3 x18	12.25	13.75
3¼x18	13.00	15.00
3½x18	14.75	17.25
4 x18	19.25	22.25
2 x20	10.00	11.50
2¼x20	11.25	12.75
2½x20	12.25	13.50
2¾x20	12.75	14.25
3 x20	13.25	14.75
3¼x20	14.00	16.00
3½x20	16.25	19.00
4 x20	21.00	24.00
2½x24	14.25	15.00
2¾x24	14.75	16.00
3 x24	15.25	16.75
3½x24	19.25	22.50
4 x24	24.50	27.50

In ordering any of above Cylinders, specify style of plunger and check valve wanted by number. We recommend the use of Nos. 52, 53 and 54 in preference to Nos. 49, 50 and 51, as we believe the **ALL BRASS PLUNGER** worth much more than the small difference in price.

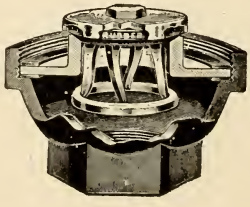
McDONALD BRASS PATENT VALVE



DIAMOND WING CHECK VALVE

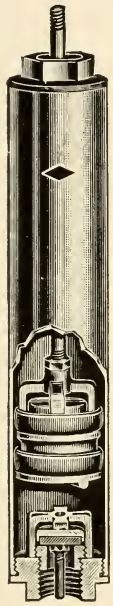


IOWA BEVEL SEAT CHECK VALVE



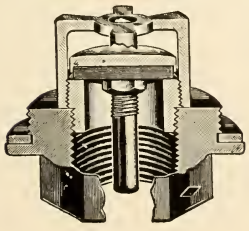
BRASS BODY CYLINDERS

BRASS BODY CYLINDER FLUSH CAP



TWO-LEATHER PLUNGER

McDONALD BRASS PATENT VALVE



WITH IRON FLUSH CAPS AND McDONALD BRASS PATENT VALVE

IRON PLUNGER, BRASS CAGE AND VALVE, OR ALL BRASS PLUNGER

Two-leather plungers regularly furnished in all these cylinders.

All cylinders have brass valve seats except 1⅝ and 1¾-inch diameter.

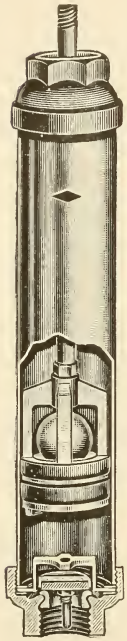
Brass body flush cap cylinders with brass cage and valve and McDonald Brass Patent Valve will be designated **No. 55.**

Brass body flush cap cylinders with all brass plunger and McDonald Brass Patent Valve will be designated **No. 56.**

In ordering above brass body cylinder with flush caps and McDonald Brass Patent Valve, specify style of plunger wanted by number. Unless otherwise specified No. 55 will be sent. We recommend the use of No. 56 in preference to No. 55, as we believe the **ALL BRASS PLUNGER** is worth much more than the small difference in price.

Sizes, Inches		No. 55	No. 56
2 x12..	each	8.00	9.25
2¼x12..	"	8.25	9.50
2½x12..	"	8.50	9.75
2¾x12..	"	9.00	10.50
3 x12..	"	9.50	11.00
3¼x12..	"	10.25	12.00
3½x12..	"	11.25	13.75
4 x12..	"	14.25	18.00
4½x12..	"	22.00	26.00
5 x12..	"	30.00	35.00
6 x12..	"	45.00	50.00
2 x14..	"	8.50	9.75
2¼x14..	"	9.00	10.25
2½x14..	"	9.25	10.50
2¾x14..	"	9.75	11.25
3 x14..	"	10.25	11.75
3¼x14..	"	11.00	12.75
3½x14..	"	12.25	14.75
4 x14..	"	15.75	19.00
4½x14..	"	24.00	28.00
5 x14..	"	33.00	38.00
6 x14..	"	50.00	56.00
1⅝x16..	"	....	10.50
1¾x16..	"	....	10.50
2 x16..	"	9.00	10.50
2¼x16..	"	9.75	11.25
2½x16..	"	10.25	11.75
2¾x16..	"	10.75	12.25
3 x16..	"	11.25	12.75
3¼x16..	"	12.00	14.00
3½x16..	"	13.50	16.00
4 x16..	"	17.50	20.50
4½x16..	"	25.00	30.50
5 x16..	"	35.00	42.00
6 x16..	"	55.00	62.00

Sizes, Inches		No. 55	No. 56
1⅝x18..	each	....	11.00
1¾x18..	"	....	11.00
2 x18..	"	9.50	11.00
2¼x18..	"	10.50	12.00
2½x18..	"	11.25	12.75
2¾x18..	"	11.75	13.25
3 x18..	"	12.25	13.75
3¼x18..	"	13.00	15.00
3½x18..	"	14.75	17.25
4 x18..	"	19.25	22.25
4½x18..	"	30.00	35.00
5 x18..	"	40.00	47.00
6 x18..	"	60.00	67.00
1⅝x20..	"	....	11.50
1¾x20..	"	....	11.50
2 x20..	"	10.00	11.50
2¼x20..	"	11.25	12.75
2½x20..	"	12.25	13.50
2¾x20..	"	12.75	14.25
3 x20..	"	13.25	14.75
3¼x20..	"	14.00	16.00
3½x20..	"	16.25	19.00
4 x20..	"	21.00	24.00
4½x20..	"	34.00	39.50
5 x20..	"	45.00	52.00
6 x20..	"	65.00	72.00
2½x24..	"	14.25	15.00
2¾x24..	"	14.75	16.00
3 x24..	"	15.25	16.75
3½x24..	"	19.25	22.50
4 x24..	"	24.50	27.50
4½x24..	"	42.00	48.50
5 x24..	"	55.00	62.00
6 x24..	"	75.00	82.00



BRASS BODY CYLINDERS

WITH IRON CAPS AND McDONALD BRASS PATENT VALVE

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

All cylinders have brass valve seats.

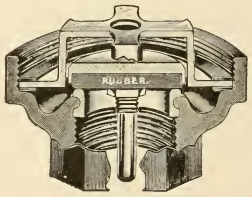
Brass body cylinders with brass two-leather bronze ball plunger and McDonald brass patent valve will be designated **No. 57.**

Brass body cylinders with brass four-leather bronze ball plunger and McDonald brass patent valve will be designated **No. 58.**

TWO-LEATHER PLUNGER

FOUR-LEATHER PLUNGER

McDONALD BRASS PATENT VALVE



SIZES AND PRICES

Sizes	Price Nos. 57 and 58
2 x14	9.75
2¼x14	10.25
2½x14	10.50
2¾x14	11.25
3 x14	11.75
3¼x14	12.75
3½x14	14.75
4 x14	19.00

Sizes	Nos. 57 and 58
2 x16	10.50
2¼x16	11.25
2½x16	11.75
2¾x16	12.25
3 x16	12.75
3¼x16	14.00
3½x16	16.00
4 x16	20.50

Sizes	Price Nos. 57 and 58
2 x18	11.00
2¼x18	12.00
2½x18	12.75
2¾x18	13.25
3 x18	13.75
3¼x18	15.00
3½x18	17.25
4 x18	22.25
2 x20	11.50
2¼x20	12.75
2½x20	13.50
2¾x20	14.25
3 x20	14.75
3¼x20	16.00
3½x20	19.00
4 x20	24.00
2½x24	15.00
2¾x24	16.00
3 x24	16.75
3½x24	22.50
4 x24	27.50

In ordering above Brass Body Cylinders with bronze ball plungers and McDonald brass patent valves, specify style of plunger wanted by number. Unless otherwise specified, No. 58 will be sent on orders for cylinders 16 inches long and longer.

BRASS BODY CYLINDERS

WITH IRON FLUSH CAPS AND McDONALD BRASS PATENT VALVE

No. 60

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

All cylinders have brass valve seats except 1⅝ and 1¾-inch diameter.

Brass body flush cap cylinders with brass two-leather bronze ball plunger and McDonald brass patent valve is designated **No. 59.**

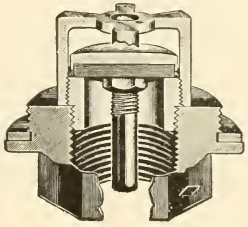
Brass body flush cap cylinders with brass four-leather bronze ball plunger and McDonald brass patent valve is designated **No. 60.**

In ordering above Brass Body Iron Flush Cap Cylinders with bronze ball plungers and McDonald brass patent valves, specify style of plunger wanted by number. Unless otherwise specified No. 60 will be sent on orders for cylinders 16 inches long and longer.

TWO-LEATHER PLUNGER

FOUR-LEATHER PLUNGER

McDONALD BRASS PATENT VALVE

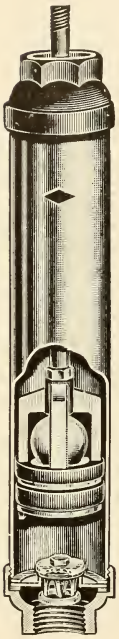


Sizes	Prices Nos. 59 and 60
2 x14	9.75
2¼x14	10.25
2½x14	10.50
2¾x14	11.25
3 x14	11.75
3¼x14	12.75
3½x14	14.75
4 x14	19.00

Sizes	Nos. 59 and 60
1⅝x16	10.50
1¾x16	10.50
2 x16	10.50
2¼x16	11.25
2½x16	11.75
2¾x16	12.25
3 x16	12.75
3¼x16	14.00
3½x16	16.00
4 x16	20.50

Sizes	Prices Nos. 59 and 60
1⅝x18	11.00
1¾x18	11.00
2 x18	11.00
2¼x18	12.00
2½x18	12.75
2¾x18	13.25
3 x18	13.75
3¼x18	15.00
3½x18	17.25
4 x18	22.25
1⅝x20	11.50
1¾x20	11.50
2 x20	11.50
2¼x20	12.75
2½x20	13.50
2¾x20	14.25
3 x20	14.75
3¼x20	16.00
3½x20	19.00
4 x20	24.00
2½x24	15.00
2¾x24	16.00
3 x24	16.75
3½x24	22.50
4 x24	27.50

BRASS BODY CYLINDERS



WITH IRON CAPS AND DIAMOND WING CHECK VALVE

TWO-LEATHER {BRASS PLUNGER WITH BRONZE BALL, OR

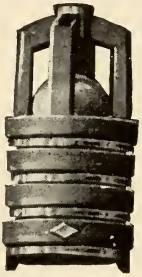
FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

Brass body cylinders with brass two-leather bronze ball plunger and diamond wing check valve will be designated **No. 61.**

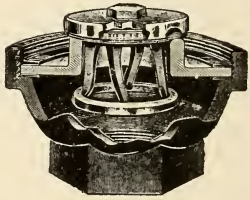
Brass body cylinders with brass four-leather bronze ball plunger and diamond wing check valve will be designated **No. 62.**

TWO-LEATHER PLUNGER

FOUR-LEATHER PLUNGER



DIAMOND WING CHECK VALVE



SIZES AND PRICES

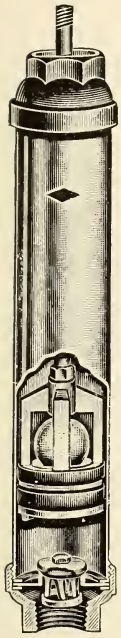
Sizes	Prices No. 61
2 x14	9.75
2¼x14	10.25
2½x14	10.50
2¾x14	11.25
3 x14	11.75
3¼x14	12.75
3½x14	14.75
4 x14	19.00

Sizes	Nos. 61 and 62
2 x16	10.50
2¼x16	11.25
2½x16	11.75
2¾x16	12.25
3 x16	12.75
3¼x16	14.00
3½x16	16.00
4 x16	20.50

Sizes	Prices Nos. 61 and 62
2 x18	11.00
2¼x18	12.00
2½x18	12.75
2¾x18	13.25
3 x18	13.75
3¼x18	15.00
3½x18	17.25
4 x18	22.25
2 x20	11.50
2¼x20	12.75
2½x20	13.50
2¾x20	14.25
3 x20	14.75
3¼x20	16.00
3½x20	19.00
4 x20	24.00
2½x24	15.00
2¾x24	16.00
3 x24	16.75
3½x24	22.50
4 x24	27.50

In ordering above Brass Body Cylinders with bronze ball plungers and Diamond wing check valves specify style of plunger wanted by number. Unless otherwise specified No. 62 will be sent on all orders for cylinders 16 inches long or longer.

BRASS BODY CYLINDERS



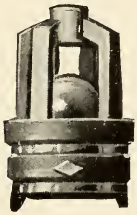
WITH IRON CAPS AND IOWA BEVEL SEAT CHECK VALVE

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

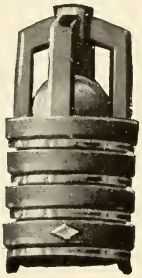
Brass body cylinders with brass two-leather bronze ball plunger and Iowa bevel seat check valve will be designated **No. 63.**

Brass body cylinders with brass four-leather bronze ball plunger and Iowa bevel seat check valve will be designated **No. 64.**

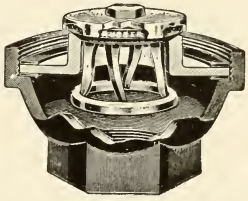
TWO-LEATHER PLUNGER



FOUR-LEATHER PLUNGER



IOWA BEVEL SEAT CHECK VALVE



SIZES AND PRICES

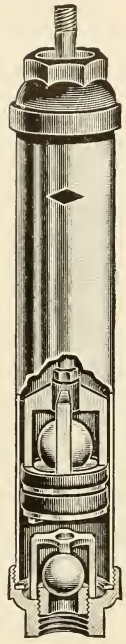
Sizes	Prices No. 63
2 x14	9.75
2¼x14	10.25
2½x14	10.50
2¾x14	11.25
3 x14	11.75
3¼x14	12.75
3½x14	14.75
4 x14	19.00

Sizes	Prices Nos. 63 and 64
2 x16	10.50
2¼x16	11.25
2½x16	11.75
2¾x16	12.25
3 x16	12.75
3¼x16	14.00
3½x16	16.00
4 x16	20.50

Sizes	Prices Nos. 63 and 64
2 x18	11.00
2¼x18	12.00
2½x18	12.75
2¾x18	13.25
3 x18	13.75
3¼x18	15.00
3½x18	17.25
4 x18	22.25
2 x20	11.50
2¼x20	12.75
2½x20	13.50
2¾x20	14.25
3 x20	14.75
3¼x20	16.00
3½x20	19.00
4 x20	24.00
2½x24	15.00
2¾x24	16.00
3 x24	16.75
3½x24	22.50
4 x24	27.50

In ordering above Brass Body Cylinders with bronze ball plungers and Iowa bevel seat check valves specify style of plunger wanted by number. Unless otherwise ordered No. 64 will be sent on orders for cylinders 16 inches long and longer.

BRASS BODY CYLINDER OUTSIDE CAP No. 65



BRASS BODY CYLINDERS

WITH IRON CAPS AND BRONZE BALL CHECK VALVE

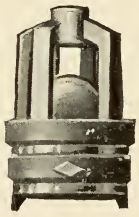
TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

Brass body cylinders with two-leather brass plunger with bronze ball and bronze ball check valve will be designated **No. 65.**

Brass body cylinders with four-leather brass plunger with bronze ball and bronze ball check valve will be designated **No. 66.**

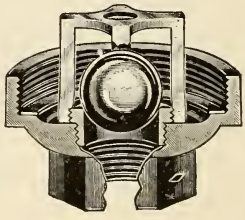
We can furnish Brass Body Cylinders with **IRON FLUSH CAPS**, with Two or Four-Leather Brass Plungers, with Bronze Balls, and with Bronze Ball Check Valves. They are designated **No. 65 F.** and **No. 66 F.** respectively. Lists and Discounts are the same as **Nos. 65** and **66.**

TWO-LEATHER PLUNGER



FOUR-LEATHER PLUNGER

BRONZE BALL CHECK VALVE



SIZES AND PRICES

Sizes	Price No. 65
2 x14	9.75
2¼x14	10.25
2½x14	10.50
2¾x14	11.25
3 x14	11.75
3¼x14	12.75
3½x14	14.75
4 x14	19.00

Sizes	Price Nos. 65 and 66
2 x16	10.50
2¼x16	11.25
2½x16	11.75
2¾x16	12.25
3 x16	12.75
3¼x16	14.00
3½x16	16.00
4 x16	20.50
2 x18	11.00
2¼x18	12.00
2½x18	12.75
2¾x18	13.25
3 x18	13.75
3¼x18	15.00
3½x18	17.25
4 x18	22.25
2 x20	11.50
2¼x20	12.75
2½x20	13.50
2¾x20	14.25
3 x20	14.75
3¼x20	16.00
3½x20	19.00
4 x20	24.00
2½x24	15.00
2¾x24	16.00
3 x24	16.75
3½x24	22.50
4 x24	27.50

In ordering above Brass Body Cylinders with bronze ball plungers and with bronze ball check valves, specify style of plunger wanted by number. Unless otherwise ordered, No. 66 will be sent on orders for cylinders 16 inches long and longer.

BRASS BODY CYLINDERS

IRON FLUSH CAPS

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR
FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

WITH BRONZE BALL AND RUBBER PUPPET DOUBLE CHECK VALVE

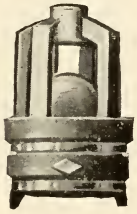
BRASS BODY CYLINDER No. 66½

Brass Body Cylinders with Iron Flush Caps and Brass Two-Leather Bronze Ball Plungers and Bronze Ball and Puppet Double Check Valves will be designated **No. 65½.**

Brass Body Cylinders with Iron Flush Caps and Brass Four-Leather Bronze Ball Plungers and Bronze Ball and Puppet Double Check Valves will be designated **No. 66½.**

These Cylinders have Brass Valve Seats, and are recommended for use in very deep wells of small diameter, as the Ball Plungers and Double Check Valves give the best of satisfaction under very heavy duty.

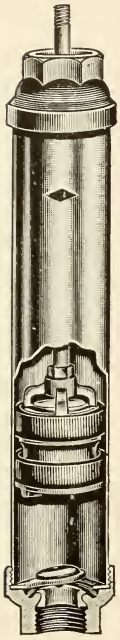
TWO-LEATHER PLUNGER



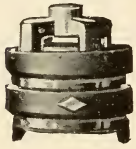
FOUR-LEATHER PLUNGER

Sizes	Stroke Inches	Price Nos. 65½ and 66½
2 x20	8	11.50
2¼x20	8	12.75
2½x20	8	13.50
2¾x20	7	14.25
3 x20	7	14.75
3¼x20	7	16.00
3½x20	7	19.00
2 x24	12	12.50
2¼x24	12	14.25
2½x24	12	15.00
2¾x24	11	16.00
3 x24	11	16.75
3¼x24	11	18.00
3½x24	11	22.50

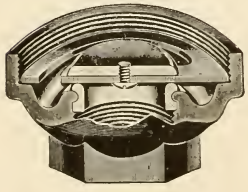
ALL BRASS CYLINDERS, OUTSIDE CAP



TWO-LEATHER PLUNGER



SECTIONAL VIEW OF LOWER CAP AND LEATHER VALVE



WITH LEATHER CHECK VALVE

TWO-LEATHER ALL BRASS PLUNGER

Two-Leather Plungers regularly furnished in all cylinders 12 inches long and longer.

All Brass Cylinders, Outside Cap, with Two-Leather All Brass Plungers and Leather Check Valve will be designated **No. 67 L. V.**

Sizes, Inches		No. 67 L. V.
2 x12	each	11.25
2¼x12	"	11.50
2½x12	"	12.75
2¾x12	"	13.25
3 x12	"	14.00
3¼x12	"	15.25
3½x12	"	17.50
4 x12	"	22.50
4½x12	"	34.00
5 x12	"	46.00
6 x12	"	65.00
2 x14	"	13.00
2¼x14	"	13.50
2½x14	"	14.75
2¾x14	"	15.50
3 x14	"	16.25
3¼x14	"	17.75
3½x14	"	21.00
4 x14	"	26.50
4½x14	"	36.00
5 x14	"	50.00
6 x14	"	70.00
2 x16	"	13.75
2¼x16	"	14.50
2½x16	"	16.00
2¾x16	"	16.50
3 x16	"	17.25
3¼x16	"	19.00
3½x16	"	22.25
4 x16	"	28.00
4½x16	"	38.75
5 x16	"	53.50
6 x16	each	75.00
2 x18	"	14.25
2¼x18	"	15.25
2½x18	"	17.00
2¾x18	"	17.50
3 x18	"	18.25
3¼x18	"	20.00
3½x18	"	23.50
4 x18	"	29.75
4½x18	"	43.25
5 x18	"	58.50
6 x18	"	80.00
2 x20	"	14.75
2¼x20	"	16.00
2½x20	"	17.75
2¾x20	"	18.50
3 x20	"	19.25
3¼x20	"	21.00
3½x20	"	25.25
4 x20	"	31.50
4½x20	"	47.75
5 x20	"	63.50
6 x20	"	85.00
2½x24	"	19.25
2¾x24	"	20.25
3 x24	"	21.25
3½x24	"	29.00
4 x24	"	35.00
4½x24	"	56.75
5 x24	"	73.50
6 x24	"	95.00

ALL BRASS CYLINDERS, OUTSIDE CAP

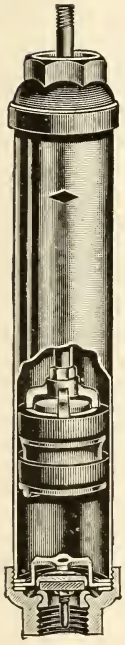
WITH McDONALD BRASS PATENT VALVE

TWO-LEATHER BRASS PLUNGER, OR FOUR-LEATHER BRASS PLUNGER

All brass outside cap cylinders with brass two-leather plunger and McDonald brass patent valve will be designated **No. 67 P. V.**

All brass outside cap cylinders with brass four-leather plunger and McDonald brass patent valve will be designated **No. 68.**

In ordering above All Brass Outside Cap Cylinders with McDonald brass patent valve, specify style of plunger wanted by number. Unless otherwise specified No. 67 P. V. will be sent.

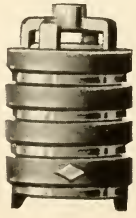


Sizes, Inches		No. 67 P. V.
2 x12	each	11.25
2¼x12	"	11.50
2½x12	"	12.75
2¾x12	"	13.25
3 x12	"	14.00
3¼x12	"	15.25
3½x12	"	17.50
4 x12	"	22.50
4½x12	"	34.00
5 x12	"	46.00
6 x12	"	65.00
	Nos. 67 P. V.	and 68
2 x14	each	13.00
2¼x14	"	13.50
2½x14	"	14.75
2¾x14	"	15.50
3 x14	"	16.25
3¼x14	"	17.75
3½x14	"	21.00
4 x14	"	26.50
4½x14	"	36.00
5 x14	"	50.00
6 x14	"	70.00
2 x16	"	13.75
2¼x16	"	14.50
2½x16	"	16.00
2¾x16	"	16.50
3 x16	"	17.25
3¼x16	"	19.00
3½x16	"	22.25
4 x16	"	28.00
4½x16	"	38.75
5 x16	"	53.50

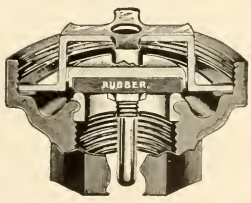
Sizes, Inches		Nos. 67 P. V. and 68
6 x16	each	75.00
2 x18	"	14.25
2¼x18	"	15.25
2½x18	"	17.00
2¾x18	"	17.50
3 x18	"	18.25
3¼x18	"	20.00
3½x18	"	23.50
4 x18	"	29.75
4½x18	"	43.25
5 x18	"	58.50
6 x18	"	80.00
2 x20	"	14.75
2¼x20	"	16.00
2½x20	"	17.75
2¾x20	"	18.50
3 x20	"	19.25
3¼x20	"	21.00
3½x20	"	25.25
4 x20	"	31.50
4½x20	"	47.75
5 x20	"	63.50
6 x20	"	85.00
2½x24	"	19.25
2¾x24	"	20.25
3 x24	"	21.25
3½x24	"	29.00
4 x24	"	35.00
4½x24	"	56.75
5 x24	"	73.50
6 x24	"	95.00

TWO-LEATHER PLUNGER

FOUR-LEATHER PLUNGER



McDONALD BRASS PATENT VALVE



ALL BRASS CYLINDERS, FLUSH CAP

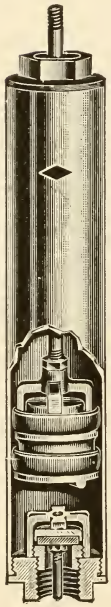
WITH McDONALD BRASS PATENT VALVE

TWO-LEATHER BRASS PLUNGER, OR FOUR-LEATHER BRASS PLUNGER

All brass flush cap cylinder with brass two-leather plunger and McDonald brass patent valve will be designated **No. 69.**

All brass flush cap cylinder with brass four-leather plunger and McDonald brass patent valve will be designated **No. 70.**

In ordering above All Brass Flush Cap Cylinders, specify kind of plunger wanted by number. Unless otherwise ordered, No. 69 will be sent. No. 70 cannot be furnished less than 14 inches long.

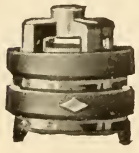


Sizes, Inches		No. 69
2 x12	each	11.25
2¼x12	"	11.50
2½x12	"	12.75
2¾x12	"	13.25
3 x12	"	14.00
3¼x12	"	15.25
3½x12	"	17.50
4 x12	"	22.50
4½x12	"	34.00
5 x12	"	46.00
6 x12	"	65.00

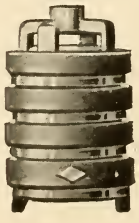
		Nos. 69 and 70
2 x14	"	13.00
2¼x14	"	13.50
2½x14	"	14.75
2¾x14	"	15.50
3 x14	"	16.25
3¼x14	"	17.75
3½x14	"	21.00
4 x14	"	26.50
4½x14	"	36.00
5 x14	"	50.00
6 x14	"	70.00
1⅝x16	"	13.75
1¾x16	"	13.75
2 x16	"	13.75
2¼x16	"	14.50
2½x16	"	16.00
2¾x16	"	16.50
3 x16	"	17.25
3¼x16	"	19.00
3½x16	"	22.25
4 x16	"	28.00
4½x16	"	38.75
5 x16	"	53.50
6 x16	"	75.00

Sizes, Inches		Nos. 69 and 70
1⅝x18	each	14.25
1¾x18	"	14.25
2 x18	"	14.25
2¼x18	"	15.25
2½x18	"	17.00
2¾x18	"	17.50
3 x18	"	18.25
3¼x18	"	20.00
3½x18	"	23.50
4 x18	"	29.75
4½x18	"	43.25
5 x18	"	58.50
6 x18	"	80.00
1⅝x20	"	14.75
1¾x20	"	14.75
2 x20	"	14.75
2¼x20	"	16.00
2½x20	"	17.75
2¾x20	"	18.50
3 x20	"	19.25
3¼x20	"	21.00
3½x20	"	25.25
4 x20	"	31.50
4½x20	"	47.75
5 x20	"	63.50
6 x20	"	85.00
2½x24	"	19.25
2¾x24	"	20.25
3 x24	"	21.25
3½x24	"	29.00
4 x24	"	35.00
4½x24	"	56.75
5 x24	"	73.50
6 x24	"	95.00
.....		.....
.....		.....

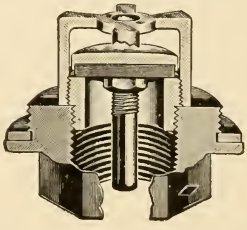
TWO-LEATHER PLUNGER



FOUR-LEATHER PLUNGER



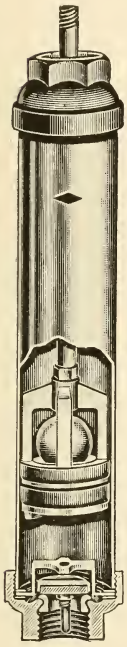
McDONALD BRASS PATENT VALVE



ALL BRASS CYLINDERS, OUTSIDE CAP

WITH McDONALD BRASS PATENT VALVE

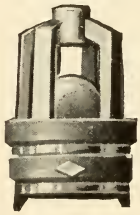
TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL



All brass outside cap cylinders with brass two-leather bronze ball plunger and McDonald brass patent valve will be designated **No. 71.**

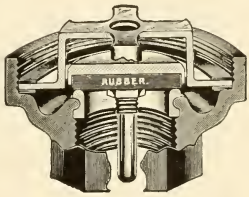
All brass outside cap cylinders with brass four-leather bronze ball plunger and McDonald brass patent valve will be designated **No. 72.**

TWO-LEATHER PLUNGER



FOUR-LEATHER PLUNGER

McDONALD BRASS PATENT VALVE



SIZES AND PRICES

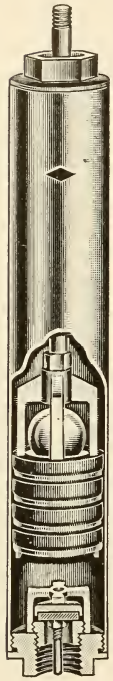
Sizes	Price No. 71
2 x14	13.00
2¼x14	13.50
2½x14	14.75
2¾x14	15.50
3 x14	16.25
3¼x14	17.75
3½x14	21.00
4 x14	26.50

Sizes	Price Nos. 71 and 72
2 x16	13.75
2¼x16	14.50
2½x16	16.00
2¾x16	16.50
3 x16	17.25
3¼x16	19.00
3½x16	22.25
4 x16	28.00
2 x18	14.25
2¼x18	15.25
2½x18	17.00
2¾x18	17.50
3 x18	18.25
3¼x18	20.00
3½x18	23.50
4 x18	29.75
2 x20	14.75
2¼x20	16.00
2½x20	17.75
2¾x20	18.50
3 x20	19.25
3¼x20	21.00
3½x20	25.25
4 x20	31.50
2½x24	19.25
2¾x24	20.25
3 x24	21.25
3½x24	29.00
4 x24	35.00

In ordering above All Brass Outside Cap Cylinders with McDonald brass patent valve, specify style of plunger wanted by number. Unless otherwise specified all cylinders 16 inches long and longer will be sent No. 72.

ALL BRASS CYLINDERS, FLUSH CAP

No. 74



WITH McDONALD BRASS PATENT VALVE

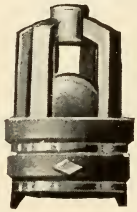
TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL, OR FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

All brass flush cap cylinder with brass two-leather bronze ball plunger and McDonald brass patent valve will be designated **No. 73.**

All brass flush cap cylinders with brass four-leather bronze ball plunger and McDonald brass patent valve will be designated **No. 74.**

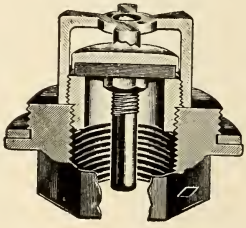
In ordering above All Brass Flush Cap Cylinders, specify style of plunger wanted by number. Unless otherwise ordered all cylinders 16 inches long and longer will be sent No. 74.

TWO-LEATHER PLUNGER



FOUR-LEATHER PLUNGER

McDONALD BRASS PATENT VALVE



SIZES AND PRICES

Sizes	Prices Nos. 73 and 74
2 x14	13.00
2¼x14	13.50
2½x14	14.75
2¾x14	15.50
3 x14	16.25
3¼x14	17.75
3½x14	21.00
4 x14	26.50
	Nos. 73 and 74
1⅝x16	13.75
1¾x16	13.75
2 x16	13.75
2¼x16	14.50
2½x16	16.00
2¾x16	16.50
3 x16	17.25
3¼x16	19.00
3½x16	22.25
4 x16	28.00
1⅝x18	14.25
1¾x18	14.25
2 x18	14.25
2¼x18	15.25
2½x18	17.00
2¾x18	17.50

Sizes	Prices Nos. 73 and 74
3 x18	18.25
3¼x18	20.00
3½x18	23.50
4 x18	29.75
1⅝x20	14.75
1¾x20	14.75
2 x20	14.75
2¼x20	16.00
2½x20	17.75
2¾x20	18.50
3 x20	19.25
3¼x20	21.00
3½x20	25.25
4 x20	31.50
2½x24	19.25
2¾x24	20.25
3 x24	21.25
3½x24	29.00
4 x24	35.00

ALL BRASS CYLINDERS

BRASS FLUSH CAP
FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL
BRONZE BALL AND RUBBER PUPPET
DOUBLE CHECK VALVE

ALL BRASS CYLINDER No. 76

FOUR-LEATHER PLUNGER

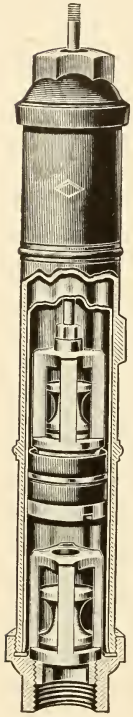
All Brass Flush Cap Cylinders with Brass Four-leather Bronze Ball Plungers, and Bronze Ball and Puppet Double Check Valves will be designated **No. 76.**

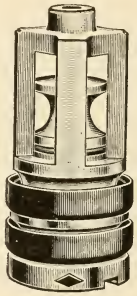
These are exceptionally good cylinders for very deep wells, and being Flush Cap, can be used in wells of small diameter. Bronze Ball Plungers and Double Check Valves are doing good work in the deepest of wells.

SIZES AND PRICES

Sizes Inches	Stroke Inches	Price No. 76	Sizes Inches	Stroke Inches	Price No. 76
1⅝x18	8	**14.25**	1⅝x24	14	**15.75**
1¾x18	8	**14.25**	1¾x24	14	**15.75**
			2 x24	12	**15.75**
1⅝x20	10	**14.75**	2¼x24	12	**17.25**
1¾x20	10	**14.75**	2½x24	12	**19.25**
2 x20	8	**14.75**	2¾x24	11	**20.25**
2¼x20	8	**16.00**	3 x24	11	**21.25**
2½x20	8	**17.75**	3¼x24	11	**24.50**
2¾x20	7	**18.50**	3½x24	11	**29.00**
3 x20	7	**19.25**	.....	..	.....
3¼x20	7	**21.00**	.....	..	.....
3½x20	7	**25.25**	.....	..	.....

BRASS-LINED CYLINDERS





WITH BRASS SPOOL PUPPET CHECK VALVES

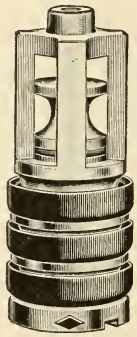
TWO, THREE OR FOUR-LEATHER BRASS PLUNGERS WITH BRASS SPOOL PUPPETS

ALL OUR CYLINDERS HAVE BRASS VALVE SEATS

Brass-Lined Cylinders, having 2-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves, will be designated **No. 136.**

Brass-Lined Cylinders, having 3-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves, will be designated **No. 136½.**

Brass-Lined Cylinders, having 4-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves, will be designated **No. 137.**

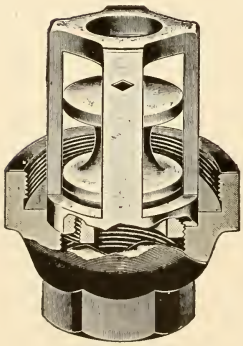


BRASS SPOOL PUPPETS, in both Plungers and Check Valves, are faced with leather and rest on Brass Seats.

CAGES of both Plungers and Check Valves are **EXTRA HEAVY AND STRONG,** suitable for the deepest of wells.

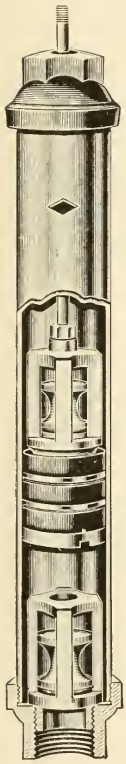
THESE ARE HIGH-GRADE CYLINDERS FOR HEAVY DUTY. ALL THE WORKING PARTS ARE BRASS AND WILL NOT RUST OR CORRODE.

Sizes, Inches	Length of Stroke Inches No. 136	No. 136½	No. 137	Prices No. 136
2 x16	8	..	..	**10.50**
2¼x16	8	..	..	**11.25**
2½x16	8	..	..	**11.75**
2¾x16	8	..	..	**12.25**
3 x16	7	..	..	**12.75**
3¼x16	7	..	..	**14.00**
				Nos. 136, 136½, 137
2 x18	10	9	8	**11.00**
2¼x18	10	9	8	**12.00**
2½x18	10	9	8	**12.75**
2¾x18	10	9	8	**13.25**
3 x18	9	8	7	**13.75**
3¼x18	9	8	7	**15.00**
2 x20	12	11	10	**11.50**
2¼x20	12	11	10	**12.75**
2½x20	12	11	10	**13.50**
2¾x20	12	11	10	**14.25**
3 x20	11	10	9	**14.75**
3¼x20	11	10	9	**16.00**



In ordering these Brass-Lined Cylinders, with Spool Puppet Plungers and Check Valves, **SPECIFY KIND OF PLUNGER WANTED BY NUMBER.** Unless otherwise specified we will send No. 136 on Cylinders 18 inches long and No. 136½ on Cylinders 20 inches long.

BRASS BODY CYLINDERS



WITH IRON OUTSIDE CAPS AND BRASS SPOOL PUPPET CHECK VALVES

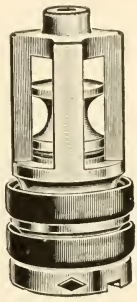
TWO, THREE OR FOUR-LEATHER BRASS PLUNGERS WITH BRASS SPOOL PUPPETS

ALL OUR CYLINDERS HAVE BRASS VALVE SEATS

Brass Body Cylinders, having 2-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves, will be designated **No. 165.**

Brass Body Cylinders, having 3-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves will be designated **No. 165½.**

Brass Body Cylinders, having 4-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves, will be designated **No. 166.**

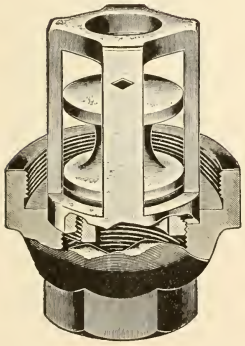


BRASS SPOOL PUPPETS, in both Plungers and Check Valves, are faced with leather and rest on Brass Seats.

CAGES of both Plungers and Check Valves are **EXTRA HEAVY AND STRONG** suitable for the deepest of wells.

THESE ARE HIGH GRADE CYLINDERS FOR HEAVY DUTY. ALL THE WORKING PARTS ARE BRASS AND WILL NOT RUST OR CORRODE.

Size Inches	Length of Stroke Inches No. 165	No. 165½	No. 166	Price No. 165
2 x16	8	..	..	**10.50**
2¼x16	8	..	..	**11.25**
2½x16	8	..	..	**11.75**
2¾x16	8	..	..	**12.25**
3 x16	7	..	..	**12.75**
3¼x16	7	..	..	**14.00**
				Nos. 165, 165½, 166
2 x18	10	9	8	**11.00**
2¼x18	10	9	8	**12.00**
2½x18	10	9	8	**12.75**
2¾x18	10	9	8	**13.25**
3 x18	9	8	7	**13.75**
3¼x18	9	8	7	**15.00**
2 x20	12	11	10	**11.50**
2¼x20	12	11	10	**12.75**
2½x20	12	11	10	**13.50**
2¾x20	12	11	10	**14.25**
3 x20	11	10	9	**14.75**
3¼x20	11	10	9	**16.00**
2 x24	16	15	14	**12.50**
2¼x24	16	15	14	**14.00**
2½x24	16	15	14	**15.00**
2¾x24	16	15	14	**16.00**
3 x24	15	14	13	**16.75**
3¼x24	15	14	13	**18.00**



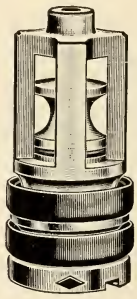
In ordering these Brass Body Cylinders with Spool Puppet Plungers and Check Valves **SPECIFY KIND OF PLUNGER WANTED BY NUMBER.** Unless otherwise ordered, Cylinders 16 inches long will be sent No. 165; Cylinders 18 inches long will be sent No. 165½, and Cylinders 20 or 24 inches long will be sent No. 166.

BRASS BODY CYLINDERS

WITH IRON FLUSH CAPS AND BRASS SPOOL PUPPET CHECK VALVES

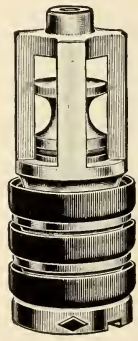
TWO, THREE OR FOUR-LEATHER BRASS PLUNGERS WITH BRASS SPOOL PUPPETS

ALL OUR CYLINDERS HAVE BRASS VALVE SEATS



Brass Body Flush Cap Cylinders, having 2-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves, will be designated **No. 165-F.**

Brass Body Flush Cap Cylinders, having 3-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves, will be designated **No. 165½-F.**



Brass Body Flush Cap Cylinders, having 4-leather Brass Plungers with Brass Spool Puppets, and Brass Spool Check Valves, will be designated **No. 166-F.**

BRASS SPOOL PUPPETS, in both Plungers and Check Valves, are faced with leather and rest on Brass Seats.

CAGES of both Plungers and Check Valves are **EXTRA HEAVY AND STRONG,** suitable for the deepest of wells.

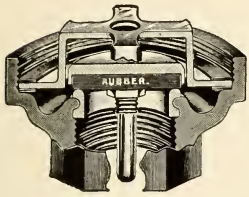
THESE ARE HIGH-GRADE CYLINDERS FOR HEAVY DUTY. ALL THE WORKING PARTS ARE BRASS AND WILL NOT RUST OR CORRODE.

Sizes, Inches	Length of Stroke, Inches			Prices
	No. 165-F	No. 165½-F	No. 166-F	No. 165-F
2 x18	8	..	..	**11.00**
2¼x18	8	..	..	**12.00**
2½x18	8	..	..	**12.75**
2¾x18	8	..	..	**13.25**
3 x18	7	..	..	**13.75**
3¼x18	7	..	..	**15.00**
				Nos. 165-F, 165½-F, 166-F
2 x20	10	9	8	**11.50**
2¼x20	10	9	8	**12.75**
2½x20	10	9	8	**13.50**
2¾x20	10	9	8	**14.25**
3 x20	9	8	7	**14.75**
3¼x20	9	8	7	**16.00**
2 x24	14	13	12	**12.50**
2¼x24	14	13	12	**14.00**
2½x24	14	13	12	**15.00**
2¾x24	14	13	12	**16.00**
3 x24	13	12	11	**16.75**
3¼x24	13	12	11	**18.00**

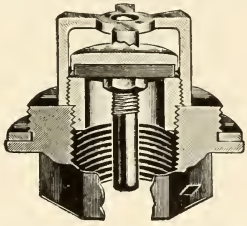
In ordering these Brass Body Flush Cap Cylinders with Spool Puppet Plungers and Check Valves, **SPECIFY KIND OF PLUNGER WANTED BY NUMBER.** Unless otherwise ordered, Cylinders 16 and 18 inches long will be sent No. 165-F; Cylinders 20 inches long will be sent No. 165½-F; Cylinders 24 inches long will be sent No. 166-F.

CHECK VALVES FOR CYLINDERS

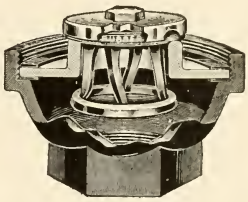
McDONALD BRASS PATENT VALVE



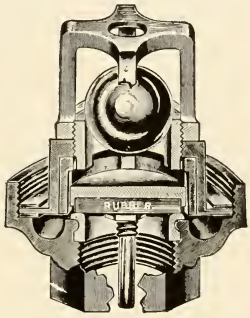
McDONALD BRASS PATENT VALVE FOR FLUSH CAP CYLINDERS



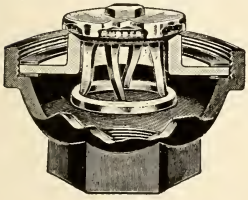
DIAMOND WING CHECK VALVE



BRONZE BALL AND POPPET DOUBLE CHECK VALVE

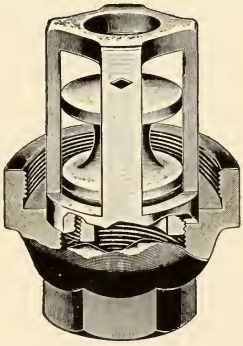


IOWA BEVEL SEAT CHECK VALVE

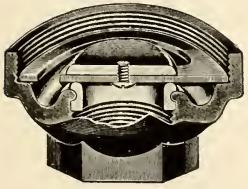


KEY CITY SAND VALVE

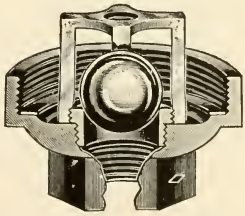
SPOOL POPPET VALVE



REGULAR LEATHER CHECK VALVE



BRONZE BALL CHECK VALVE IN BOTTOM CYLINDER CAP



In the illustrations above we show all the various check valves which we furnish in different cylinders of our manufacture.

All the above check valves have merit, and some are more satisfactory than others in certain localities; but we can give you a check valve that will give satisfaction in your territory.

On the following pages we give full description of these valves, except the leather valve, which is so familiar that it needs none.

CYLINDER PARTS

LEATHER VALVES COMPLETE

Diam. of Cylinder.....inches	2	2¼	2½	2¾	3	3¼	3½	4	4½	5
Price.....each	.25	.27	.30	.32	.35	.40	.43	.52	.70	.85

VALVE LEATHERS AND FLAT PLUNGER LEATHERS

VALVE LEATHER

Put up in round boxes containing 1 dozen leathers.

FLAT PLUNGER LEATHER

Diam. of Cylinder.....inches	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	6
Price.....per dozen	1.08	1.33	1.42	1.67	1.75	2.17	2.58	3.00	3.50	4.33	5.83

Leathers for Key City Sand Valves, same price as regular Valve Leathers.

VALVE WEIGHT, WITH BRASS SCREW AND WASHER

Diam. of Cylinder.....inches	2	2¼	2½	2¾	3	3¼	3½	4	4½	5
Price.....each	.16	.16	.18	.18	.20	.20	.22	.25	.30	.40

Valve Weights and Screws for Key City Sand Valves, same as above.

CUPPED PLUNGER LEATHERS, EXTRA QUALITY

Our Cupped Plunger Leathers are made from Selected Sides of Leather specially tanned and finished for Pump Work, and are much superior to the standard cupped leathers on the market. They are neatly packed in Round Boxes containing one dozen leathers. Our Cupped Leathers are Strictly High Grade.

Diam. of Cylinder.....inches	1¼	1½	1⅝	1¾	1⅞	2	2¼	2½	2¾	3
Price.....per dozen	.75	1.00	1.33	1.33	1.50	1.50	1.67	2.17	2.42	2.75
Diam. of Cylinder.....inches	3¼	3½	3¾	4	4¼	4½	4¾	5	5¾	6
Price.....per dozen	3.08	4.08	4.83	5.25	6.25	6.67	7.17	8.17	10.83	12.00

LEATHER WASHERS FOR CYLINDER CAPS

Diam. of Cylinder.....inches	2	2¼	2½	2¾
Price.....per dozen	.75	.83	1.00	1.17
Diam. of Cylinder.....inches	3	3¼	3½	4
Price.....per dozen	1.33	1.58	1.92	2.17
Diam. of Cylinder.....inches	4½	5	6	....
Price.....per dozen	2.50	3.17	4.17	....

RUBBER DISCS FOR KEY CITY SAND VALVES

Diam. of Cylinder.....inches	2	2¼	2½	2¾	3	3¼	3½	4
Price.....each	.15	.15	.15	.20	.20	.20	.20	.40

CHECK VALVES FOR CYLINDERS

KEY CITY SAND VALVE

This illustration shows a Check Valve for Cylinders which is is very satisfactory, particularly where there is any sand or grit in the water. It is excellent for repair work, when valve seats are rough or worn.

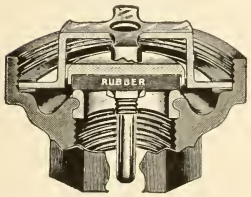
The leather covers the valve seat in the cylinder cap, the hole in the leather being the same size as the opening of the valve seat in the cap. A molded rubber disc is attached to the tongue of the leather. The disc is larger in diameter than the opening in the leather and seats on the leather. This gives a yielding surface on which the rubber rests, and with the elasticity of the rubber makes a valve which gives very good results.

The valve may be used in pitcher spout pumps and house force pumps generally, in which case the valve weight is made with trip, so that it can be opened by dropping the plunger down so that it strikes the trip on the valve weight, permitting water to run back into the well or cistern and draining the pump.

The Key City Sand Valve can be used in any cylinder with outside caps and in any Pitcher Pump or House Force Pump. The Key City Sand Valve will always be furnished with regular iron valve weight, unless specified for Pitcher Spout or House Force Pump use.

Diameter of Pitcher Spout Pump.....inches					2½	3	3½	4
Price.....each					.40	.40	.50	.50
Diameter of Cylinder..inches	2	2¼	2½	2¾	3	3¼	3½	4
Price.....each	.40	.40	.40	.40	.40	.50	.50	.50

McDONALD PATENT VALVE



The McDonald Patent Valve for Cylinders shown, needs but little explanation. It consists of a Cage and Poppet which works in the regular Bottom Cylinder Cap. The Cage directly over the poppet keeps it in place and leather washers are placed both above and below the cage to insure a tight joint.

The Cage is either Brass or Iron as desired, but we recommend the Brass Cage as beingl ess liable to be broken if struck by plunger. The Poppet is always brass, with a Rubber Disc inserted or hooded in the metal. The metal rim of the poppet is drawn down around the outer edge of the Rubber Disc, and prevents the Rubber from expanding and catching in the cage. A Brass Nut holds the Rubber Disc in place. The inner surface of the poppet is machined perfectly true, making proper backing for the Rubber Disc. The Discs are a special composition of rubber suited to the purpose.

Where there is a liability to pump sand these Valves are unsurpassed, as the Rubber Disc resists sand instead of allowing it to imbed on its face as in a leather valve. Leather valves will often absorb the sand and in a short time harden and crack, causing the water to leak back, and at such times a good cylinder will be condemned when only the valve is at fault.

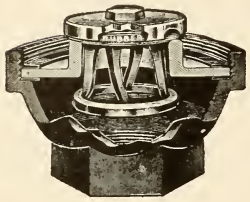
We most highly recommend this valve in preference to the ordinary leather check valve.

Size Diameter of Cylinder....inches	1⅝	2	2¼	2½	2¾	3	3¼	3½	4
Price, with Iron Cage.....each	...	...	...	.50	.50	.50	.60	.60	.75
" with Brass " ..... "	.75	.75	.75	.75	.75	.75	1.00	1.00	1.50

In ordering state whether wanted for Iron, Brass-Lined or Brass Body Cylinder.

CHECK VALVES FOR CYLINDERS

DIAMOND WING VALVE



Valve seat is raised, permitting plenty of room between cylinder shell and valve seat for lodgment of sand or grit. Face of valve seat is slightly rounded, permitting rubber disc in poppet to make a tight joint on valve seat, easily.

Poppet is brass and contains a high-grade rubber disc of special composition. The cap of poppet has a rim projecting down over edge of rubber disc, this rim preventing the rubber from expanding out under heavy pressure. The wings of the poppet are spiral, and give a positive rotary movement when water passes through them. This rotary movement causes poppet to change position on valve seat at each stroke of cylinder, in this way preventing the lodging of foreign material on the seat and insuring an even wear on the seat and rubber disc.

The ring or check on lower end of wings permits proper amount of lift to the poppet. Being a continuous ring, the check is superior to the ordinary lugs so often used on wings of valves, which cut notches into lower flange of valve seat, and wear off.

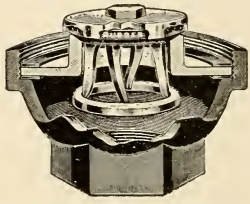
This valve is made of a high-grade of brass, and is carefully machined, being turned off perfectly true in a lathe. It is strong, positive, and suitable for wells of any depth.

Where there is a liability to pump sand, these valves are much superior to leather valves, as the rubber disc resists sand, instead of allowing it to imbed on its face as in leather valves.

This check valve is used in an ordinary top cap of a cylinder as the wings of poppet project below flange of valve seat. To use this valve in repairing an old cylinder, it is necessary to reverse the caps on cylinder, using the top cap as bottom cap.

We recommend this valve in preference to the ordinary leather check valve for all cylinders.

IOWA BEVEL SEAT VALVE



Valve seat has a beveled face and rubber disc has a corresponding bevel. The beveled face of valve seat gives no chance for lodgment of sand or grit. There is ample space between raised valve seat and cylinder shell to receive any foreign substances contained in the water.

Poppet is brass, and contains a rubber disc of high-grade composition. The cap of the poppet has a rim projecting down over edge of rubber disc to prevent wear. The wings of the poppet are spiral, giving a positive rotary movement to the poppet as water passes through. This rotary movement causes poppet to seat at a different point each time, and insures even wear on brass seat and rubber disc.

A continuous ring at lower end of wings of poppet permits proper lift, and this ring is much more durable than the ordinary lugs so often used, which cut notches in lower flange of valve seat, and wear off.

A rubber disc, properly encased in brass, is much superior to a leather check valve where there is any grit or sand in the water. The elasticity of the rubber permits the disc to make a tight joint, with grit or sand on the valve seat, and as soon as valve lifts from the seat, the expansion of the rubber expels the foreign matter which is then carried away by the water. A leather check valve under the same circumstances would absorb the sand or grit and keep it in its face, to cut and scratch valve seat and finally leak.

This valve is carefully machined from a good red brass. It is a good valve for wells of any depth. It can be used only in the top cap of cylinders, as the wings of the poppet extend below the lower flange of valve seat.

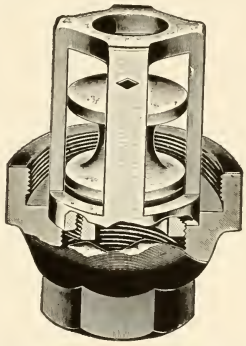
DIAMOND WING AND IOWA BEVEL SEAT VALVES

Size, Diameter of Cylinder inches	2	2¼	2½	2¾	3	3¼	3½	4
Price.....each	**1.10**	**1.15**	**1.20**	**1.30**	**1.40**	**1.60**	**1.80**	**2.00**

Specify whether for Iron, Brass-Lined or Brass Body Cylinder.

CYLINDER CHECK VALVES

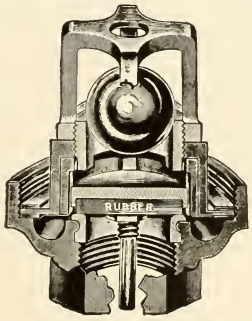
SPOOL CHECK VALVE



Spool Poppet Check Valves are very satisfactory for Wells of any depth. The Bottom Cap has a Brass Valve Seat, threaded on the outside on which the Brass Cage screws. Brass Spool Poppet is heavy, and has a Special Leather Disc fastened to its lower face, and the leather disc makes this a very tight and durable Check Valve. This Spool Poppet Check Valve has been used in deep wells for many years with most excellent results.

Sizes.....inches	2	2¼	2½	2¾	3	3¼
Price, with Bottom Cap.....	**2.10**	**2.25**	**2.35**	**2.45**	**2.60**	**3.00**

BRONZE BALL AND BRASS POPPET DOUBLE CHECK VALVE



The Check Valve shown herewith is, in our opinion, the best for cylinders in very deep wells, say over 200 feet to water.

Bronze ball is absolutely spherical, and rests on a bronze valve seat turned true to fit ball. Weight of ball causes it to close quickly, and to dislodge any sand or foreign matter which might be on valve seat.

As bronze does not give or yield under pressure to any extent, to make it impossible for check valve to leak, we put the brass poppet holding a rubber disc under the bronze ball. This brass and rubber poppet rests on the regular brass valve seat in lower cylinder cap.

Should any water leak back by the bronze ball, the brass and rubber poppet will hold it.

The bronze ball being heavier, will close more quickly than the brass and rubber poppet, taking off all pound from the poppet. This poppet is the same as used in McDonald patent valve.

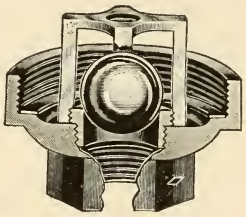
SIZES AND PRICES

Size, Diameter of Cylinder .....inches	2	2¼	2½	2¾	3	3¼	3½
Price, Complete with Bottom Cap, as shown.....	**2.90**	**3.15**	**3.25**	**3.40**	**3.55**	**4.00**	**4.40**

CYLINDER VALVES

BRONZE BALL CHECK VALVE

FOR CYLINDERS



To meet the requirements in deep well territory, we make our Bronze Ball Check Valve.

They are made for either Outside Cap or Flush Cap Cylinders at same price.

The balls are manufactured from bronze, which is much harder than ordinary brass, and more expensive.

They are turned absolutely spherical, which is necessary.

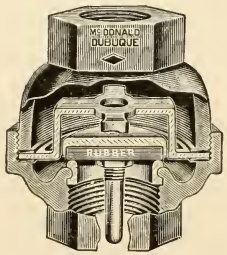
They rest on a bronze valve seat, which is also turned absolutely true, and affords no place for sediment or sand to lodge.

Being heavy, bronze ball check valves seat quickly, and because of their weight will dislodge any foreign matter which tends to lodge on valve seat.

We advise the use of a **PATENT VALVE FOOT VALVE** (shown below) about 1 foot below the **BALL CHECK VALVE.** Not because we lack confidence in the ball check valve, but it gives two check valves, and the owner need not care which valve holds the water.

Size.....inches	1⅝	1¾	2	2¼	2½
Price, with Bottom Cap.....	**2.00**	**2.00**	**2.10**	**2.25**	**2.35**
Size.....inches	2¾	3	3¼	3½	4
Price, with Bottom Cap.....	**2.45**	**2.60**	**3.00**	**3.30**	**5.00**

PATENT VALVE FOOT VALVE

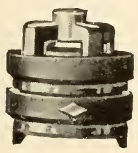


Above illustration shows our foot valve which is a good thing to put about 1 foot below any deep well cylinder, as it makes a double check, rendering leakage almost impossible. The valve in this foot valve is our McDonald patent valve.

Size.....inches	1	1¼	1½	2
Price, with Brass Patent Valve.....	**2.50**	**2.75**	**3.25**	**4.25**

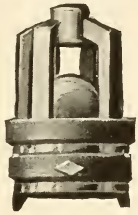
PLUNGERS FOR CYLINDERS

TWO-LEATHER PLUNGER, ALL IRON. IRON, BRASS CAGE AND VALVE. ALL BRASS



FOUR-LEATHER PLUNGER, ALL IRON. IRON, BRASS CAGE AND VALVE. ALL BRASS

TWO-LEATHER BRASS PLUNGER WITH BRONZE BALL



FOUR-LEATHER BRASS PLUNGER WITH BRONZE BALL

Plungers and Check Valves are the most important parts of a cylinder.

Our plungers have strong cages or yokes either brass or iron, tapped for 7/16 rod, 12 thread. Many other makers use 3/8 rods, 14 thread. The larger rod and coarser thread are better, as they will not wear the thread in the cage or pull out as easily as the smaller rod and finer thread.

A JAM NUT OR LOCK NUT is put on rod above **BRASS CAGES** or **YOKES,** preventing the rod from working loose in the cage or yoke and spoiling the thread. Plunger Poppet, either Iron or Brass, is much heavier than in other makes of cylinders, and the long stem of poppet helps it settle to seat quickly. Plunger Followers are either brass or iron. Face of follower is machined perfectly true to make perfect fit with poppet, which is also perfectly true on lower face.

Leathers used on our plungers are of superior quality, made by us from leather specially tanned and finished for pump use. Our leathers are the most durable made, and are both pliable and durable, two qualities needed in a plunger leather.

The Two-Leather Plunger shown above is more popular than the old fashioned one-leather plunger with the long follower. **THEY ARE REGULARLY FURNISHED IN ALL CYLINDERS 12 INCHES LONG AND LONGER,** though the one-leather plunger with long follower will be furnished to any of our customers who so order.

Four-Leather Plungers are used extensively in cylinders for very deep wells. They are longer than the two-leather plunger, and are very durable. They can not be used in cylinders less than 14 inches long.

In general we advise the use of All Brass Plungers in wells of any depth. They will not corrode, are easy to re-leather, and face of follower remains true much longer than on an iron follower. And All Brass Plungers do not cost much more than All Iron Plungers or Iron Plungers, Brass Cage and Valve.

To meet the requirements in deep well territory, we make our Brass Plungers with Bronze Balls.

The Cages are strong, and there is a Lock Nut on rod above cage which prevents rod from working loose in cage. Bronze Balls are a special hard composition, very hard and turned absolutely spherical. Plunger Follower is a special red brass, with face carefully turned to form a perfect seat for the Bronze Ball.

ONE-LEATHER PLUNGERS

The illustration to the left shows a one-leather plunger, which is still used in some sections. Cages and Poppets are the same as used in our two-leather plungers. Followers for cylinders 12 inches long and longer are turned in a lathe, fitting close to the shell of cylinder.

Cylinders with one-leather plungers cost the same as those with two-leather plungers.

They are made in four lengths; for 10-inch cylinders; for 12-inch cylinders or longer; for 14-inch cylinders or longer; for 16-inch cylinders or longer.

For prices see repair list in back of catalogue.

ALL BRASS ARTESIAN WELL CYLINDERS

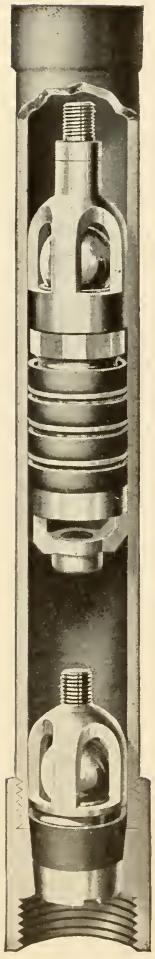
WITH BRONZE BALL VALVES

No. 448

This cylinder is built for use in the deepest wells and where heavy work is required.

The shell is made of heavy seamless brass tubing, fitted with Extra Heavy Bronze Ball Valves, which are supplied with best cupped oak tanned leathers.

Cylinder may be placed in open wells and in drilled wells where the pipe or casing is sufficiently large to admit the cylinder attachments. To get the best results the Cylinder should always be sufficiently deep to be immersed in the water. A suction strainer may be connected to the bottom coupling. Standard pipe threads are used in both couplings.



The plunger and lower valves can be removed through the connecting pipe, which is larger in diameter than the bore of the cylinder, thus making it convenient when repairs are necessary.

Wood Sucker Rods with forged couplings are recommended.

The Cylinder will be furnished for well casing at price list for corresponding sizes. Intermediate sizes will take the list of next larger size.

Inside Diameter Inches	Length Stroke Inches	Capacity per Stroke Gallons	Length Cylinder Inches	Outside Diameter Caps Inches	Top and Bottom Connecting Pipes Inches	Size of Pin in Plunger Inches	Square of Wood Sucker Rod Inches	Price Each
1 3/8	16	.10	36	2 3/16	1 1/2	5/8	1 1/8	**15.00**
1 3/8	24	.154	44	2 3/16	1 1/2	5/8	1 1/8	**16.50**
1 3/4	10	.10	27	2 15/16	2	5/8	1 1/8	**17.50**
1 3/4	16	.16	33	2 15/16	2	5/8	1 1/8	**19.00**
1 3/4	24	.25	41	2 15/16	2	5/8	1 1/8	**21.00**
2 1/4	10	.172	29	3 9/16	2 1/2	7/8	1 1/4	**26.00**
2 1/4	16	.275	35	3 9/16	2 1/2	7/8	1 1/4	**28.00**
2 1/4	24	.41	43	3 9/16	2 1/2	7/8	1 1/4	**30.00**
2 1/4	36	.61	55	3 9/16	2 1/2	7/8	1 1/4	**34.00**
2 3/4	10	.257	31	3 7/8	3	7/8	1 1/2	**34.00**
2 3/4	16	.411	37	3 7/8	3	7/8	1 1/2	**36.00**
2 3/4	24	.61	45	3 7/8	3	7/8	1 1/2	**38.00**
2 3/4	30	.77	51	3 7/8	3	7/8	1 1/2	**40.00**
2 3/4	36	.925	57	3 7/8	3	7/8	1 1/2	**42.00**
3 1/4	10	.36	35	4 7/16	3 1/2	7/8	2	**45.00**
3 1/4	16	.574	41	4 7/16	3 1/2	7/8	2	**48.00**
3 1/4	24	.862	49	4 7/16	3 1/2	7/8	2	**52.00**
3 1/4	30	1.06	55	4 7/16	3 1/2	7/8	2	**55.00**
3 1/4	36	1.292	61	4 7/16	3 1/2	7/8	2	**58.00**

Price list continued on page 835.

ALL BRASS ARTESIAN WELL CYLINDERS

WITH BRONZE BALL VALVES—CONTINUED

Inside Diameter Inches	Length Stroke Inches	Capacity per Stroke Gallons	Length Cylinder Inches	Outside Diameter Caps Inches	Top and Bottom Connecting Pipes Inches	Size of Pin in Plunger Inches	Square of Wood Sucker Rod Inches	Price Each
3¾	10	.478	37	5⅛	4	⅞	2¼	67.50
3¾	16	.764	43	5⅛	4	⅞	2¼	70.00
3¾	20	1.05	47	5⅛	4	⅞	2¼	72.50
3¾	24	1.147	51	5⅛	4	⅞	2¼	75.00
3¾	28	1.34	55	5⅛	4	⅞	2¼	77.50
3¾	30	1.374	57	5⅛	4	⅞	2¼	80.00
3¾	36	1.72	63	5⅛	4	⅞	2¼	85.00
3¾	42	2.00	69	5⅛	4	⅞	2¼	90.00
4¼	10	.614	39	5¾	4½	1⅛	2½	87.50
4¼	16	.982	45	5¾	4½	1⅛	2½	90.00
4¼	20	1.23	49	5¾	4½	1⅛	2½	92.50
4¼	24	1.473	53	5¾	4½	1⅛	2½	95.00
4¼	28	1.72	57	5¾	4½	1⅛	2½	97.50
4¼	30	1.842	59	5¾	4½	1⅛	2½	100.00
4¼	36	2.21	65	5¾	4½	1⅛	2½	105.00
4¼	42	2.60	71	5¾	4½	1⅛	2½	110.00
4¾	10	.767	41	6¼	5	1⅛	3	120.00
4¾	16	1.227	47	6¼	5	1⅛	3	127.50
4¾	20	1.53	51	6¼	5	1⅛	3	131.50
4¾	24	1.84	55	6¼	5	1⅛	3	135.00
4¾	28	2.15	59	6¼	5	1⅛	3	138.50
4¾	30	2.30	61	6¼	5	1⅛	3	142.50
4¾	36	2.76	67	6¼	5	1⅛	3	150.00
4¾	42	3.22	73	6¼	5	1⅛	3	157.50
5¾	10	1.12	48	7¼	6	1⅛	3½	172.00
5¾	16	1.798	54	7¼	6	1⅛	3½	180.00
5¾	20	2.2	58	7¼	6	1⅛	3½	187.50
5¾	24	2.696	62	7¼	6	1⅛	3½	195.00
5¾	28	3.1	66	7¼	6	1⅛	3½	202.50
5¾	30	3.36	68	7¼	6	1⅛	3½	207.50
5¾	36	4.04	74	7¼	6	1⅛	3½	217.50
5¾	42	4.71	80	7¼	6	1⅛	3½	227.50
6¾	16	2.479	59	8⅝	7	1½	4	280.00
6¾	20	3.097	63	8⅝	7	1½	4	290.00
6¾	24	3.716	67	8⅝	7	1½	4	300.00
6¾	28	4.336	71	8⅝	7	1½	4	310.00
6¾	30	4.646	73	8⅝	7	1½	4	320.00
6¾	36	5.576	79	8⅝	7	1½	4	335.00
6¾	42	6.506	85	8⅝	7	1½	4	350.00
7¾	16	3.26	62	9½	8	1½	5	425.00
7¾	20	4.08	66	9½	8	1½	5	435.00
7¾	24	4.9	70	9½	8	1½	5	450.00
7¾	28	5.718	74	9½	8	1½	5	465.00
7¾	30	6.126	76	9½	8	1½	5	480.00
7¾	36	7.34	82	9½	8	1½	5	500.00
8¾	16	4.164	63	11	9	2	5½	685.00
8¾	20	5.205	67	11	9	2	5½	705.00
8¾	24	6.247	71	11	9	2	5½	725.00
8¾	28	7.288	75	11	9	2	5½	750.00
8¾	30	7.809	77	11	9	2	5½	775.00
8¾	36	9.37	83	11	9	2	5½	825.00
9½	24	7.24	76	12	10	2	6	915.00
9½	30	9.18	82	12	10	2	6	955.00
9½	36	11.02	88	12	10	2	6	1,000.00

Larger sizes quoted on application.

ALL BRASS ARTESIAN WELL CYLINDERS

WITH SPOOL OR BALL VALVES

No. 449

The body of this cylinder is seamless brass tubing. The valves are made strong enough to withstand severe service. The leather packings are from best selected stock. The bottom of the plunger is tapped so that it may be screwed on the top of the check valve, thus enabling the plunger and check valves to be withdrawn at one operation. Both valves are fitted with heavy leather faced poppets as shown, or with bronze ball valves.

This cylinder may be placed in open or drilled wells where the pipe or casing is large enough to take the cylinder attachments. It is adapted to work in deep wells and to withstand severe service.

Furnished with Spool Valves unless otherwise ordered. A steel pin or substitute, threaded for forged sucker rod coupling, comes screwed in top of each plunger.

Inside Diam. Inches	Length Stroke Inches	Extreme Length of Cylinder with Attachments Inches	Capacity per Stroke Gallons	Extreme Outside Diam. Attachments Inches	Top and Bottom Connecting Pipes Inches	Size of Pin in Plunger Inches	Price With Spool Valves Each	Price With Bronze Ball Valves Each
1 7/8	12	23	.12	2 15/16	2	5/8	17.00	20.00
1 7/8	16	27	.16	2 15/16	2	5/8	18.00	21.00
1 7/8	24	35	.25	2 15/16	2	5/8	21.00	24.00
2 1/4	12	25	.2	3 9/16	2 1/2	7/8	30.00	34.00
2 1/4	16	29	.275	3 9/16	2 1/2	7/8	32.00	36.00
2 1/4	24	37	.41	3 9/16	2 1/2	7/8	35.00	39.00
2 1/4	36	49	.61	3 9/16	2 1/2	7/8	40.00	44.00
2 3/4	12	26	.3	3 7/8	3	7/8	38.00	43.00
2 3/4	16	30	.411	3 7/8	3	7/8	40.00	45.00
2 3/4	24	38	.61	3 7/8	3	7/8	44.00	49.00
2 3/4	36	50	.924	3 7/8	3	7/8	50.00	55.00
3 1/4	12	28	.432	4 7/16	3 1/2	7/8	52.00	59.00
3 1/4	16	32	.574	4 7/16	3 1/2	7/8	55.00	62.00
3 1/4	24	40	.862	4 7/16	3 1/2	7/8	60.00	67.00
3 1/4	36	52	1.292	4 7/16	3 1/2	7/8	68.00	75.00
3 3/4	12	30	.574	5 1/8	4	1 1/8	70.00	80.00
3 3/4	16	34	.764	5 1/8	4	1 1/8	73.00	83.00
3 3/4	24	42	1.147	5 1/8	4	1 1/8	78.00	88.00
3 3/4	36	54	1.72	5 1/8	4	1 1/8	92.00	102.00
4 1/4	12	34	.737	5 5/8	4 1/2	1 1/8	110.00	125.00
4 1/4	16	38	.982	5 5/8	4 1/2	1 1/8	115.00	130.00
4 1/4	24	46	1.47	5 5/8	4 1/2	1 1/8	125.00	140.00
4 1/4	36	58	2.21	5 5/8	4 1/2	1 1/8	140.00	155.00
4 3/4	12	35	.92	6 1/8	5	1 1/8	140.00	160.00
4 3/4	16	39	1.227	6 1/8	5	1 1/8	147.00	167.00
4 3/4	24	47	1.84	6 1/8	5	1 1/8	160.00	180.00
4 3/4	36	59	2.76	6 1/8	5	1 1/8	182.00	202.00
5 3/4	12	41	1.348	7 3/8	6	1 1/8	190.00	215.00
5 3/4	16	45	1.79	7 3/8	6	1 1/8	198.00	223.00
5 3/4	24	53	2.70	7 3/8	6	1 1/8	210.00	235.00
5 3/4	36	65	4.05	7 3/8	6	1 1/8	230.00	255.00

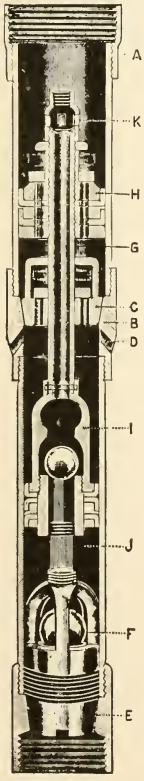
DOUBLE-ACTING CYLINDERS

The descriptive cut on this page represents the Double-acting Cylinder which we feel will fill a long felt want with deep well contractors.

The cylinder is suspended from ordinary drop pipe by means of a heavy brass coupling (A). The barrel consists of two pieces of seamless brass tubing connected by a brass coupling (B) tapered inside to seat a stationary check valve (C) and fitted with port holes (D) which act as a water inlet for the upper cylinder. At the bottom is another brass coupling (E) fitted with taper which seats a bronze ball type check valve (F), which acts as a water inlet for the lower cylinder. The plunger rod (G) consists of a seamless brass tube on which are attached two plungers (H) and (I), one above the stationary check valve (C) and one below it.

The action of this cylinder is very simple. When the plunger rod is drawn upward the water passes through the lower check valve (F) into the chamber (J). When the plunger rod is lowered, the water is forced through the tube (G) and emptied into the discharge pipe by means of a port coupling (K). This completes the action of the lower cylinder.

In the upper cylinder the action is as follows: Water enters through the port holes (D). On the up stroke it passes through the stationary check valve (B). On the down stroke it passes through the plunger (H) and on the next up stroke is lifted into the discharge pipe. Thus we complete our double action. On each **UP** stroke water is delivered into the discharge pipe by the upper plunger (H) and on each **DOWN** stroke water is forced into the discharge pipe by means of the plunger (I).

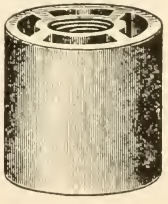


Inside Diam. Inches	Length of Stroke Inches	Drop Pipe Inches	Inside Diam. of Piston Tube Inches	Capacity per Revolution Gallons	Capacity per Minute Running 25 Strokes Gallons	Extreme Outside Diam. of Couplings Inches	Extreme Lgth. from Port Holes to Bottom of Cylinder Inches	Price Each
1¾	24	2	½	.50	12.50	2¾	38	**30.00**
1¾	36	2	½	.66	16.50	2¾	50	**32.00**
2¼	24	2½	¾	.75	18.75	3⅜	38	**46.00**
2¼	36	2½	¾	.90	22.50	3⅜	50	**48.50**
2¾	24	3	¾	1.10	27.50	3 15/16	40	**69.50**
2¾	36	3	¾	1.70	42.50	3 15/16	52	**72.50**
3¼	24	3½	1	1.55	38.75	4 7/16	44	**93.00**
3¼	36	3½	1	2.00	50.00	4 7/16	56	**97.50**
3¾	24	4	1¼	2.15	53.75	5⅛	46	**120.00**
3¾	36	4	1¼	3.25	81.25	5⅛	58	**127.50**
4¼	24	4½	1¼	2.75	68.75	5 11/16	48	**145.00**
4¼	36	4½	1¼	4.25	106.25	5 11/16	60	**155.00**
4¾	24	5	1½	3.50	87.50	6¼	49	**223.00**
4¾	36	5	1½	5.20	130.00	6¼	61	**230.00**
5¾	24	6	2	5.00	125.00	7½	56	**267.00**
5¾	36	6	2	7.50	187.50	7½	68	**275.00**
6¾	24	7	2	6.50	162.50	8¾	60	**365.00**
6¾	36	7	2	10.00	250.00	8¾	72	**378.00**
7¾	24	8	2½	9.00	225.00	9¾	60	**567.00**
7¾	36	8	2½	13.00	325.00	9¾	72	**578.00**

Prices on larger sizes quoted on application.

GUIDE COUPLINGS

To be used on piston rod in connection with double-acting cylinder.

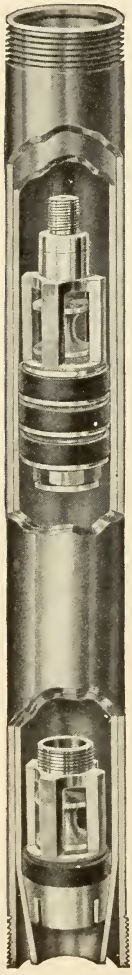


Size Inches	Price Each	Size Inches	Price Each
1¾	**1.00**	4¼	**3.50**
2¼	**1.25**	4¾	**4.00**
2¾	**1.80**	5¾	**5.00**
3¼	**2.25**	6¾	**6.00**
3¾	**3.00**	7¾	**7.00**

BRASS-LINED AND ALL BRASS WORKING BARRELS

WITH 3-LEATHER SPOOL POPPET VALVES

BRASS-LINED
No. 652



These Brass-Lined Working Barrels are regularly threaded for standard iron pipe, but will be furnished for well casing at the same price for corresponding sizes; intermediate sizes for casing will take the list of the next larger size. The lining of the cylinder is heavy, and the inside diameter is smaller than the pipe so the plungers and valves can be readily withdrawn through the pipe above the cylinder. The steel casing affords complete protection to the brass lining.

The All Brass Working Barrel is to be inserted in the well pipe or casing after it is in the well.

ALL BRASS
No. 653

Size of Well Inches	Inside Diameter of Cylinder Inches	Length Stroke Inches	Length Barrel Inches	—Price, Complete— Brass-Lined	All Brass
2	1 13/16	10	20	7.00	6.00
2	1 13/16	14	24	7.50	6.50
2	1 13/16	24	34	9.00	8.00
2	1 13/16	36	46	11.00	9.50
2½	2¼	10	23	12.00	10.50
2½	2¼	14	27	12.50	11.00
2½	2¼	24	37	14.50	12.00
2½	2¼	36	49	16.00	13.50
3	2¾	10	25	16.00	13.00
3	2¾	14	29	17.50	14.00
3	2¾	24	39	19.50	15.50
3	2¾	36	51	22.00	17.00
3½	3¼	10	26	22.50	19.50
3½	3¼	14	30	23.50	20.50
3½	3¼	24	40	26.00	24.00
3½	3¼	36	52	29.00	27.50
4	3¾	10	29	30.50	25.00
4	3¾	14	33	32.00	26.50
4	3¾	24	43	35.00	29.00
4	3¾	36	55	38.00	31.50

Directions for seating and fastening all brass working barrels in well on page 840.

BRASS-LINED AND ALL BRASS WORKING BARRELS

WITH 4-LEATHER BRONZE BALL VALVES

The Brass-lined Working Barrels are regularly threaded for iron pipe, but will be furnished for well casing at the same prices for corresponding sizes; intermediate sizes will take the next larger price. The lining of the cylinder is heavy and the inside diameter is smaller than the pipe so that plungers and valves can readily be withdrawn through the pipe above the cylinder. The steel casing affords complete protection to the brass lining.

The All Brass Working Barrel is to be inserted in the well pipe or casing after it is in the well.

BRASS-LINED
No. 654

Size of Well Inches	Inside Diameter of Cylinder Inches	Length Stroke Inches	Length Barrel Inches	Price, Complete Brass-Lined	Price, Complete All Brass
2	1 13/16	10	23	11.50	10.50
2	1 13/16	14	27	12.00	11.00
2	1 13/16	24	37	13.50	12.50
2	1 13/16	36	49	15.50	14.00
2 1/2	2 1/4	10	24	15.50	14.00
2 1/2	2 1/4	14	28	16.50	14.50
2 1/2	2 1/4	24	38	18.00	15.50
2 1/2	2 1/4	36	50	19.50	17.00
3	2 3/4	10	26	21.50	18.50
3	2 3/4	14	30	22.50	19.50
3	2 3/4	24	40	24.50	21.00
3	2 3/4	36	52	27.00	23.00
3 1/2	3 1/4	10	28	31.50	29.00
3 1/2	3 1/4	14	32	32.50	30.00
3 1/2	3 1/4	24	42	35.00	33.00
3 1/2	3 1/4	36	54	38.00	37.00
4	3 3/4	10	28	44.50	39.00
4	3 3/4	14	32	46.00	40.50
4	3 3/4	24	42	49.00	43.00
4	3 3/4	36	54	52.50	45.50
4 1/2	4 1/4	10	34	54.50	48.00
4 1/2	4 1/4	14	38	56.00	49.50
4 1/2	4 1/4	24	48	61.50	51.50
4 1/2	4 1/4	36	60	65.50	54.50
5	4 3/4	24	48	78.00	70.50
5	4 3/4	36	60	86.00	74.50
6	5 3/4	24	52	112.00	92.00
6	5 3/4	36	64	124.00	100.00
7	6 3/4	24	56	152.00	136.00
7	6 3/4	36	68	166.00	146.00
8	7 7/16	24	58	236.00	212.00
8	7 7/16	36	70	250.00	222.00
9	8 1/2	24	60	285.00	.....
9	8 1/2	36	72	325.00	.....
10	9 1/2	24	68	460.00	.....
10	9 3/8	36	76	490.00	.....

ALL BRASS
No. 655

Directions for seating and fastening all brass working barrels in wells on the page following.

WELL TOOLS

WELL PACKER

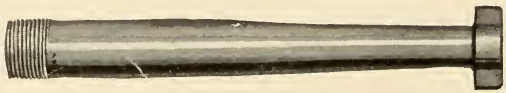
The Well Packer is used for making a tight joint between the strainer and the well casing on cylinders Nos. 653 and 655. It screws on the upper end of the strainer. It also acts as a support for the All Brass Working Barrels. It has a key seat into which the seating tool fits.

See full directions below.

Diameter of Well.....inches	2	2½	3	3½	4
Iron Pipe Thread on Bottom of Packer "	1¼	1½	2	2	2½
Price.....each	**1.50**	**2.00**	**2.70**	**4.50**	**6.00**
Diameter of Well.....inches	4½	5	6	7	8
Iron Pipe Thread on Bottom of Packer "	3	3½	4	5	6
Price.....each	**7.50**	**10.00**	**14.00**	**20.00**	**30.00**

SEATING TOOL

No. 451



The Seating Tool is attached to the pump rod and inserted into the key seat of the well packer shown above. See full directions below.

Size Cylinder..inches	2	2½	3	4	5	6	7	8
Price.....each	**.60**	**.90**	**1.20**	**2.40**	**6.00**	**8.00**	**10.00**	**12.00**

No. 496 GUM PACKER

WITH BRASS ATTACHED

The Gum Packer with Brass Attached fits on the tapered lower end of All Brass Working Barrels Nos. 653 and 655, and is used for seating the working barrels, as per directions below.

Diameter Well Casing..inches	2	2½	3	3½	4
Price.....each	**1.15**	**1.60**	**2.10**	**2.95**	**3.40**
Diameter Well Casing..inches	4½	5	6	7	8
Price.....each	**4.75**	**5.25**	**6.15**	**8.70**	**11.40**

DIRECTIONS FOR FASTENING ALL BRASS WORKING BARRELS Nos. 653 AND 655

To fasten these All Brass Working Barrels in the well, attach the seating tool to the pump rod, insert it in the key seat of the well packer, lower it in the well to the place where you wish to seat the cylinder, turn the pump rod to the right, forcing the taper wedge of the well packer into the rubber ring and expanding the rubber ring, which makes a tight joint; release the seating tool and withdraw the rod from the well; attach the pump rod to the plunger of the cylinder, screw the check valves to the bottom of the plunger and drive it firmly into the taper of the cylinder; take the gum packer with brass attached, crowd it on the lower end of the cylinder until it expands to the size of the well; lower the valves, cylinder and gum packer with brass attached to where the well packer is fastened, drive cylinder firmly into the gum packer; unscrew plunger from the check valve and attach pump rod to the pump head.

EUREKA TUBULAR WELL CYLINDERS

ALL BRASS

These cylinders are constructed of seamless drawn brass tubing, and fitted with brass lower check valve and brass plunger.

They are let down in the well, through the pipe, after the pipe is set and ready to receive them.

The cylinder is crowded down into place through the pipe by means of a seating tool. The spring dog coupling at the lower end of the cylinder holds firmly to the inside of the pipe, thus keeping the cylinder in place where set. Then the cylinder is revolved, by means of the seating tool, to expand the rubber ring which is between the spring dog coupling and the cylinder, the expanding rubber ring making a water tight joint, as is necessary.

No. 450 complete with 2-Leather Poppet Plunger and Check Valves and Spring Dog Coupling.

No. 453 complete with 4-Leather Plunger and Bronze Ball Valves and Spring Dog Coupling.

No. 450

No. 453

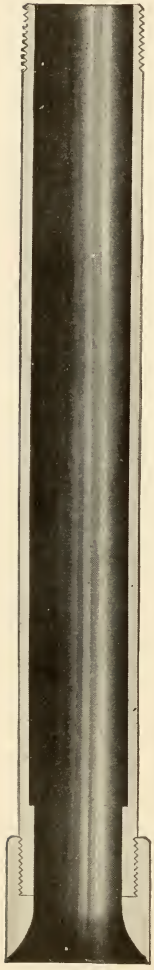
Size Well Inches	Inside Diameter Inches	No. 450 Stroke Inches	No. 450 Price Each	No. 453 Stroke Inches	No. 453 Price Each
2	1 13/16	..	.....	10	4.50
2	1 13/16	12	6.40	12	4.75
2	1 13/16	16	7.60	16	5.00
2 1/2	2 1/4	..	.....	10	9.00
2 1/2	2 1/4	12	11.00	12	10.00
2 1/2	2 1/4	16	12.50	16	10.50
3	2 3/4	..	.....	10	12.50
3	2 3/4	12	15.00	12	13.00
3	2 3/4	16	17.00	16	13.50
3 1/2	3	12	30.00	12	23.00
3 1/2	3	16	33.00	16	24.50
3 1/2	3	..	.....	24	26.00
4	3 1/2	..	.....	12	31.00
4	3 1/2	16	36.00	16	32.50
4	3 1/2	24	42.00	24	35.50
4 1/2	4	16	50.00	16	41.00
4 1/2	4	24	58.00	24	45.00
5	4 1/2	24	60.00	24	60.00
5	4 1/2	36	80.00	36	70.00
6	5 1/2	24	112.00	24	90.00
6	5 1/2	36	136.00	36	104.00
7	6 1/2	24	180.00	24	120.00
7	6 1/2	36	220.00	36	136.00
8	7 7/16	36	360.00	24	360.00
8	7 7/16	42	400.00	36	400.00

Eureka Cylinders, 4 inches and smaller, can be furnished with a taper joint and rubber packer, the same as those on tubular well check valves, and seated as a tubular check valve is seated. Price is the same as above.

WROUGHT IRON TUBULAR WELL CYLINDERS

No. 440

No. 440



This cylinder is made of either black or galvanized extra strong pipe, bored and polished. Unless otherwise ordered, it will be furnished with a shoulder for holding a turned coupling to seat the check valve. In 24-inch and 36-inch lengths the shoulders are 3 inches from the bottom of the cylinder, and in 48-inch lengths the shoulder is 12 inches from the bottom of the cylinder.

A galvanized cylinder without driving shoe will be furnished unless otherwise specified.

Diameter Cylinder Inches	Length Cylinder Inches	Price Without Driving Shoe Painted Each	Price Without Driving Shoe Galv. Each	Price With Driving Shoe Painted Each	Price With Driving Shoe Galv. Each
2	24	2.25	2.80	3.00	3.50
2	36	3.25	3.80	4.00	4.50
2	48	4.25	5.00	5.00	5.75
2½	36	5.75	6.50	6.65	7.50
2½	48	8.35	8.25	8.50	9.25
3	36	8.00	8.80	9.00	10.00
3	48	10.50	11.00	11.50	12.25
4	36	12.00	13.75	14.00	15.75
4	48	15.50	18.00	17.50	20.00

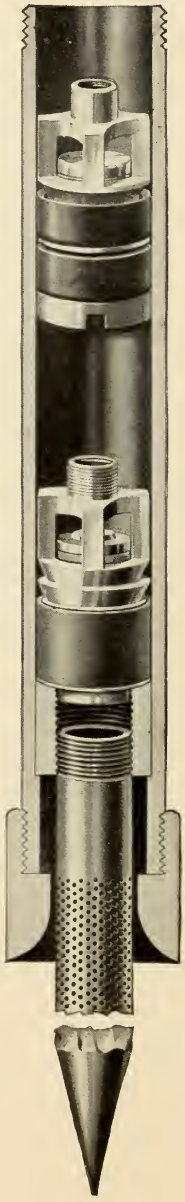
The illustration No. 431 on the right shows the same cylinder as that priced and illustrated on the left (No. 440), except that this one shows the valves, turned coupling and well point. We do not price these cylinders with valves, turned coupling and well point included, as there are so many different combinations which can be used, but the price of the cylinder with valves, well point, etc., is to be figured by adding to the price of the cylinder with shoe the prices of valves, turned coupling and well point.

2 and 2½-inch cylinders take 1¼-inch well point.

3-inch cylinder takes 2-inch well point.

4-inch cylinder takes 2½-inch well point.

No. 431



BRASS-LINED TUBULAR WELL CYLINDERS

GALVANIZED

No. 441

No. 441

This Cylinder is made of wrought pipe, bored out, and with a lining of seamless brass tubing swaged into it. It has all the smoothness of an all brass tube cylinder, but is less liable to damage by external pressure, as the outer casing thoroughly protects the brass lining.

For the small additional cost, it pays to use brass-lined cylinders instead of polished iron, as the tube will work more easily and the plunger leathers will wear much longer.

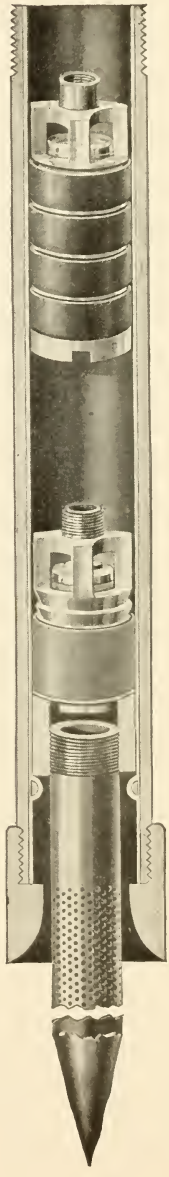
Unless otherwise ordered, this cylinder will be furnished with shoulder as shown 3 inches from the bottom.

Diameter Cylinder Inches	Length Cylinder Inches	Price, Galvanized With Driving Shoe Each	Price, Galvanized Without Driving Shoe Each
2	24	**6.10**	**5.25**
2	36	**7.75**	**6.90**
2	48	**9.80**	**9.00**
2½	24	**8.15**	**7.00**
2½	36	**10.50**	**9.30**
2½	48	**14.00**	**12.80**
3	24	**10.00**	**8.50**
3	36	**13.00**	**11.50**
3	48	**17.00**	**15.50**
4	36	**19.00**	**16.50**
4	48	**24.00**	**21.50**

The illustration (No. 442) on the right shows the same brass-lined tubular well cylinder as No. 441 priced and shown on the left, except that this cut shows it furnished with a set of 4 leather valves, turned coupling and well point.

We do not price this cylinder complete with valves and point, as any desired combination can be furnished, and the price is figured by adding the cost of the cylinder with shoe to the price of the valves, turned coupling and tubular well point as may be selected.

No. 442



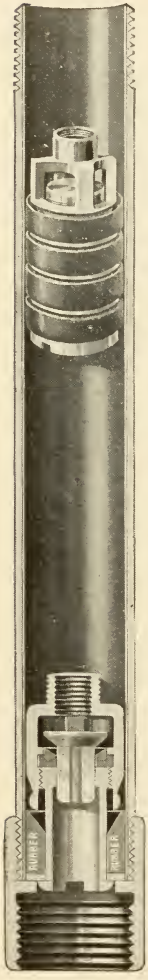
2 and 2½-inch cylinders take 1¼-inch well point.

3-inch cylinder takes 2-inch well point.

4-inch cylinder takes 2½-inch well point.

BRASS-LINED ARTESIAN WELL CYLINDER

No. 412



POPPET VALVES

No. 412

This is a galvanized steel cased artesian well cylinder with brass lining, and can be used inside of cased or open wells.

A special coupling (shown in cut) on the lower end of the cylinder provides a shoulder for seating the check valve, as illustrated. The valves are all brass and the plunger has four leathers; the valves can be withdrawn through the connecting pipe, as the latter is larger than the bore of the cylinder.

Diameter Cylinder Inches	Stroke Inches	Top and Bottom Connecting Pipes Inches	Length Cylinder Inches	Extreme Outside Diameter Inches	Plunger Fitted for Pipe Inches	Price Each
2	16	2	26	2 7/8	3/8	5.70
2	24	2	34	2 7/8	3/8	6.65
2 1/2	16	2 1/2	26	3 3/8	3/8	9.30
2 1/2	24	2 1/2	34	3 3/8	3/8	10.50
3	16	3	26	4 1/8	1/2	11.80
3	24	3	34	4 1/8	1/2	13.60
4	16	4	28	5 1/8	3/4	20.00
4	24	4	36	5 1/8	3/4	22.00

No. 445

BRASS-LINED ARTESIAN WELL CYLINDER

BRONZE BALL VALVES

No. 445

This Cylinder is the same as No. 412, but it is fitted with bronze ball valves instead of poppet valves.

It is galvanized steel cased with brass lining and for use on deep wells. It can be used inside of casing or on open wells. Fitted with four-leather heavy bronze ball tubular valves. The check valve is seated on the shoulder of the special coupling which is attached to the lower end of the cylinder, as shown.

Both plunger and lower valve can be either inserted or withdrawn through the connecting pipe, as the latter is larger in diameter than the bore of the cylinder.

Diameter Cylinder Inches	Stroke Inches	Top and Bottom Connecting Pipes Inches	Length Cylinder Inches	Extreme Outside Diameter Inches	Plunger Fitted for Pipe Inches	Price Each
2	16	2	26	2 7/8	3/8	6.60
2	24	2	34	2 7/8	3/8	7.60
2 1/2	16	2 1/2	26	3 3/8	3/8	10.80
2 1/2	24	2 1/2	34	3 3/8	3/8	12.00
3	16	3	28	4 1/8	1/2	14.30
3	24	3	36	4 1/8	1/2	16.50
4	16	4	34	5 1/8	3/4	31.00
4	24	4	42	5 1/8	3/4	33.00

BRASS BODY ARTESIAN WELL CYLINDER

No. 446

This Cylinder is designed and built for use inside of cased or open wells.

The illustration shows the cylinder equipped with a set of two leather tubular valves of the common poppet type, but it can be supplied with any of the various styles of either plunger or lower valve, as illustrated on the two succeeding pages.

The check valve seats on a shoulder in the special artesian coupling at the lower end of the cylinder, and the valves can either be inserted or removed through the connecting pipe without disjointing or pulling up the pipe.

The cylinder will be furnished without valves unless otherwise specified, and the accompanying price list does not include the valves, but the cylinder only, with couplings.

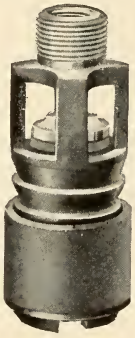
Diameter Cylinder Inches	Top and Bottom Connecting Pipes Inches	Length Cylinder Inches	Extreme Outside Diameter Inches	Price Without Valves Each
2	2	24	2 7/8	7.60
2	2	30	2 7/8	9.20
2	2	36	2 7/8	10.80
2 1/2	2 1/2	24	3 3/8	11.60
2 1/2	2 1/2	30	3 3/8	14.40
2 1/2	2 1/2	36	3 3/8	17.20
3	3	24	4 1/8	18.50
3	3	30	4 1/8	23.00
3	3	36	4 1/8	27.50

TUBULAR WELL VALVES

ALL BRASS WITH POPPETS

No. 460
2-LEATHER PLUNGER

No. 461 CHECK VALVE
RUBBER FACED POPPET



No. 475
4-LEATHER PLUNGER

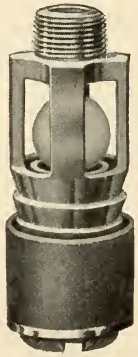
These are the standard Tubular Well Valves. They are usually sold in sets, a plunger and check valve making a set. The material and workmanship are first class in every respect.

Size.....inches	2	2½	3	4	5	6
Price, with 2-Leather Plunger.....per set	2.40	6.00	8.00	16.00	40.00	50.00
" " 4 " " ..... "	3.20	7.00	10.00	18.00	44.00	60.00
" No. 461 Check Valve only....each	1.50	3.50	4.50	.....	.....	.....

WITH BRONZE BALLS

No. 485
2-LEATHER PLUNGER

No. 486
CHECK VALVE



No. 487
4-LEATHER PLUNGER

These valves are made for use in deep wells and where heavy service is required. They have extra heavy cages and hard Bronze Balls fitting perfectly on their seats. Leathers of the best quality are used on the plungers.

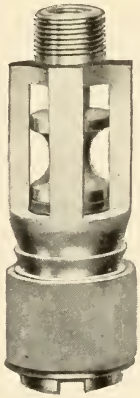
Size.....inches	?	2½	3	4
Price, with 2-Leather Plunger.....per set	4.00	9.00	12.00	32.00
" " 4 " " ..... "	5.00	10.00	14.00	36.00
" No. 486 Check Valve only.....each	2.25	5.00	6.50	17.00

TUBULAR WELL VALVES

ALL BRASS SPOOL POPPETS

No. 505
2-LEATHER PLUNGER

No. 506
CHECK VALVE



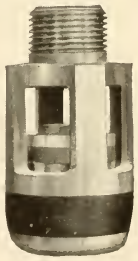
No. 507
4-LEATHER PLUNGER

These valves have been designed to meet the trade demands for a stronger and more durable valve than the regular tubular well valves. The spool poppets are leather faced, the cages are strong and the plunger leathers are separated by long brass rings. Full water way is provided, and they are a most satisfactory valve in every respect.

Size ..... inches	2	2½	3	4
Price, with 2-Leather Plunger ..... per set	4.00	9.00	12.00	32.00
" " 4 " " ..... "	5.00	10.00	14.00	36.00
Price, No. 506 Check Valve Only ..... each	2.25	5.00	6.50	17.00

ALL BRASS TUBULAR WELL VALVES FOR EUREKA CYLINDERS

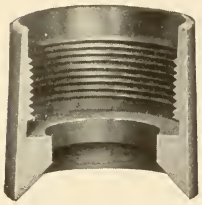
These valves are used in Eureka Tubular Well Cylinders. As noted below, they can be furnished with four-leather plungers instead of two-leathers, if desired.



Size ..... inches	2	2½	3	4
Price, with 2-Leather Plunger ..... per set	2.40	6.00	8.00	16.00
" " 4 " " ..... "	3.20	7.00	10.00	18.00
" Check Valve Only ..... each	1.50	3.50	4.50	.....

MALLEABLE DRIVE SHOE

No. 433

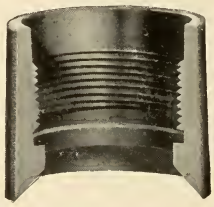


WITH OR WITHOUT SHOULDER

Size Pipe .....inches	2	2½	3	3½	4
Price.....each	.50	.70	.90	1.20	1.50

CAST STEEL DRIVE SHOE

No. 419



These shoes, being made of steel castings, are much stronger than the malleable shoes. They are furnished either rough or finished, the finished shoe being turned perfectly true both inside and outside.

Size, Pipe ...inches	1½	2	2½	3	3½	4	4½
Price, Rough..each	.80	.80	1.10	1.50	2.50	2.75	3.75
" Finished "	1.00	1.00	1.30	2.00	3.50	4.00	6.00
Size, Pipe .....inches	5	*5⅝	6	8	10	12	
Price, Rough.....each	4.25	6.50	6.50	8.00	12.50	25.00	
" Finished... "	7.00	9.00	9.00	12.00	18.00	35.00	

*For well casing.

No. 421

FORGED STEEL DRIVE SHOE

These shoes are steel forgings, turned perfectly true both inside and outside. They have a long recess above the thread to prevent spreading or breaking of the pipe at the end of the threads. This style is recommended for large pipe and for severe driving.

Size, Pipe, inches	2	2½	3	3½	4	4½	5	6
Price.....each	1.50	2.50	3.50	5.00	6.00	8.00	10.00	12.00
Size, Pipe, inches	7	8	10	12	14	15	16	.....
Price.....each	15.00	18.00	36.00	48.00	70.00	90.00	110.00	.....

Shoes for well casing will be furnished at the same list; intermediate sizes being charged at the price of the next larger size.

No. 619

STEEL DRIVE HEAD

Screwed into the coupling when driving pipe or well points.

Size, Pipe .....inches	1¼	1½	2	2½
Price.....each	1.50	2.00	2.50	6.00
Size, Pipe .....inches	3	4	5	6
Price.....each	9.00	16.00	24.00	30.00

No. 618

MALLEABLE DRIVE CAP

These caps are extra heavy, much stronger than ordinary caps, and are made for driving pipe and well points.

Size, Pipe.....inches	1¼	1½	2	2½	3	4
Price.....each	.20	.24	.44	1.00	1.25	1.50

PACKERS, BALLS, ETC.

No. 703 RUBBER PACKERS

FOR TUBULAR WELL VALVES

Size.....inches	2	2½	3	3½
Price.....each	.16	.20	.40	.60
Size.....inches	4	5	6	...
Price.....each	.80	3.00	4.00	...

No. 871 BALLS

HARD RUBBER OR BRONZE

Size.....inches	⅞	1⅛	1¼	1⅞
Price, Rubber.....each	...	.10	.25	....
" Bronze..... "	.35	.50	.70	1.10
Size.....inches	1½	1¾	1⅞	2⅛
Price, Rubber.....each	.40	.50	....	....
" Bronze..... "	...	...	1.60	2.45

No. 498 WELL SEAL

This well seal makes a tight joint, in wells, between different sizes of pipe, by forcing the taper of the seal into the coupling or pipe, thus expanding the rubber packer. The rubber packer on lower end is held in place by a loose washer.

Diameter Well..inches	2	2½	3	3½	4
Tapped for Pipe. "	¾	1	1¼	2	2½
Price.....each	2.00	3.00	4.00	6.00	8.00
Diameter Well..inches	4½	5	6	7	8
Tapped for Pipe. "	3	3½	4	5	6
Price.....each	12.00	15.00	20.00	30.00	40.00

HEXAGON ROD COUPLINGS

MALLEABLE IRON OR BRASS

Size Rod.....inches	⅜	⅜x7/16	7/16	½	½x7/16	½x⅜
No. Threads to the Inch.....	14	14x12	12	12	12x12	12x14
Price, Black.....per pound	.32	.32	.32	.32	.32	.32
" Galvanized..... "	.40	.40	.40	.40	.40	.40
" Brass..... "	1.00	1.00	1.00	1.00	1.00	1.00

No. 429
PIPE AND ROD COUPLINGS

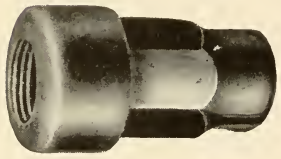
FOR ⅜-INCH PIPE AND ⅝-INCH ROD

	Price per Pound Black	Galvanized
⅜-inch Pipe Couplings.	.36	.44
⅝ " Rod "	.36	.44

ROD COUPLINGS

FEMALE REDUCER COUPLING

FOR ½ AND ⅜-INCH PIPE AND STEEL PUMP ROD



Trade Number....	438	439	438A	439A
Style.....	Pipe Rod.	Pipe Rod.	Pipe Rod.	Pipe Rod.
Size .....inches	⅜x⅜	⅜x7/16	½x⅜	½x7/16
Price, Black per lb.	.25	.25	.25	.25
" GALV. "	.30	.30	.30	.30

MALE AND FEMALE REDUCER COUPLINGS

Trade Number.....	490	491	490A	491A
Style.....	Pipe Rod.	Pipe Rod.	Pipe Rod.	Pipe Rod.
Size.....inches	⅜x⅜	⅜x7/16	½x⅜	½x7/16
Price, Black....per lb.	.25	.25	.25	.25
" GALV.... "	.30	.30	.30	.30

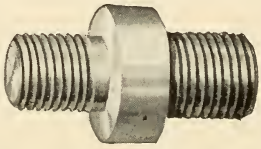
HEXAGON LOCK NUTS

FOR PUMP RODS — GALVANIZED

Trade Number.....	492	493	494
Size Rod.....inches	⅜	7/16	½
Price.....per lb.	.30	.30	.30

STEEL SUBSTITUTES

STRAIGHT AND REDUCING SUCKER ROD COUPLING AND ROD TO PIPE THREAD SUBSTITUTES



No.....	811	812	813	814	815	816	817	818	819	820
Size of Pin and No. of Threads	5/8x12 to 5/8x12	7/8x10 to 5/8x12	7/8x10 to 7/8x10	1x10 to 5/8x12	1x10 to 7/8x10	1x10 to 1x10	1⅛x8 to 7/8x10	1⅛x8 to 1x10	1⅛x8 to 1⅛x8	1¼x8 to 1x10
Price..each	.50	1.00	1.00	2.00	2.00	2.00	2.50	2.50	2.50	3.00

No.....	821	822	823	824	832	825	833	826	827	834
Size of Pin and No. of Threads	1¼x8 to 1⅛x8	1¼x8 to 1¼x8	1½x8 to 1⅛x8	1½x8 to 1¼x8	1½x8 to 1½x8	5/8x12 to ⅜ Pipe	5/8x12 to ½ Pipe	7/8x10 to ⅜ Pipe	7/8x10 to ½ Pipe	7/8x10 to ¾ Pipe
Price..each	3.00	3.00	4.00	4.00	4.00	.50	.50	.70	.70	1.00

No.....	828	835	829	830	836	837	838	831	....	...
Size of Pin and No. of Threads	1x10 to ½ Pipe	1x10 to ¾ Pipe	1⅛x8 to ¾ Pipe	1⅛x8 to 1 Pipe	1¼x8 to ¾ Pipe	1¼x8 to 1 Pipe	1½x8 to 1 Pipe	1½x8 to 1¼ Pipe	....	... ...
Price..each	1.50	2.00	2.25	3.00	3.00	3.00	3.00	3.00	....	....

We can furnish any of the above combinations in rod to rod or rod to pipe, female connections. Other combinations on application.

COUPLINGS AND RODS

TWO-HOLE WOOD ROD COUPLING

ALSO MADE WITH 3 AND 4 HOLES

End of wood rod should be driven into the socket of the coupling, to prevent splitting of rod.

Size Rod.....inches	1 & 1⅛	1 & 1⅛	1 & 1⅛	1¼ & 1⅜	1½ & 1⅜
Number of Holes.....	2	3	4	3	4
Size of Iron Pipe Threads...	⅜	⅜	⅜	½	½
Trade Number, Black.....	430	435	438½	436	437
Price, Black.....per set	.10	.16	.20	.20	.60
Trade Number, Galvanized..	432	435	438½	436	437
Price, Galvanized.....per set	.14	.20	.24	.24	.80

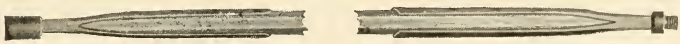
FORGED WOOD ROD COUPLING

With forged straight box and pin, same size as, and interchangeable with, oil-well couplings.

Trade Numbers.....	408	409	410	411	412
Size Wood Rod.....inches	1⅛	1⅝	1⅞	2¼	3½
" Box and Pin..... "	⅝x12	⅞x10	1x10	1⅛x8	1½x8
Diam. Working Barrel "	1⅜ to 2¼	2¼ to 2¾	2¾ to 3¾	3¾ to 5¾	5¾ to 8¾
Price, Black.....per set	.60	.75	1.30	2.00	5.00
" Galvanized.... "	.85	1.15	1.75	2.60	6.00

OCTAGON WOOD PUMP ROD

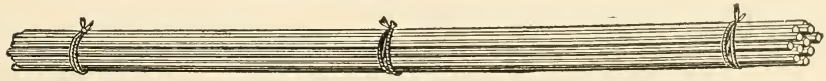
FITTED WITH FORGED COUPLINGS



Best selected Ash, furnished in random lengths of about 20 feet.

Size Rod.....inches	1⅛	1⅝	1⅞	2¼	3½
Diam. Working Barrel "	1⅜ to 2¼	2¼ to 2¾	2¾ to 3¾	3¾ to 5¾	5¾ to 8¾
Price, with Black Couplings...per foot	.08	.11	.18	.25	.65
" " { Galvanized Couplings and Copper Rivets...per foot	.15	.20	.30	.40	1.10

OAK OR ASH WOOD ROD



Best quality selected stock; 1, 1⅛ and 1¼ regularly about 16 feet long and either square or octagon; larger sizes random lengths about 20 feet long and always sent octagon.

Size Rod.....inches	1	1⅛	1¼	1⅝	1⅞	2¼	3½
Price.....per foot	.03½	.04	.04½	.05	.09	.14	.30

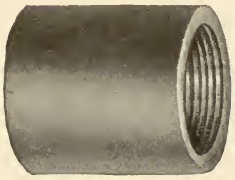
GALVANIZED DRAWN STEEL PUMP ROD

Price, ⅜, 7/16, or ½-inch.....per pound ....

Always furnished in 18-foot lengths.

COUPLINGS, REAMERS, ETC.

TURNED COUPLINGS No. 434



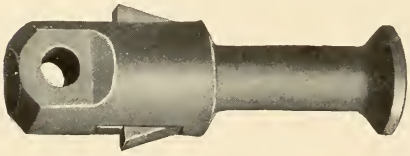
Turned and faced wrought iron; to suspend point from shoe or shoulder and to seat tubular well check valve.

Size Coupling, inches	1¼	1¼x1	1½x1¼	1½	2x1½	2	3x2½
" Cylinder "	2	2	2½	2½	3	3	4
Price.....each	.12	.20	.20	.25	.30	.60	.60

TOOL COUPLINGS No. 623

Extra long and heavy wrought iron couplings made for use on well tools.

Size.....inches	1	1¼	1½	2
Length..... "	3½	3¾	3¾	3¾
Price.....each	.20	.26	.30	.40



PIPE REAMERS No. 620

TO REAM ENDS OF TUBULAR WELL PIPE

Size.....inches	2	2½	3
Price.....each	1.50	2.00	3.00

HYDRAULIC BLIND VALVE

No. 622

Size of Well Pipe.....inches	2	3	4
Fitted for Pipe..... "	1	1¼	2
Price.....each	1.40	2.00	5.00

PIPE DRIFTS No. 621

FOR TUBULAR WELL PIPE

Size.....inches	2	2½	3
Price.....each	5.00	7.00	10.00

TAPER TAP No. 626

FOR PULLING HOLLOW RODS

Fitted for Pipe..inches	1	1¼	1½
To pull Pipe... "	⅜ to 1¼	¾ to 2	2 to 3
Price..... each	4.50	6.25	12.00

Furnished with right-hand threads unless otherwise ordered.

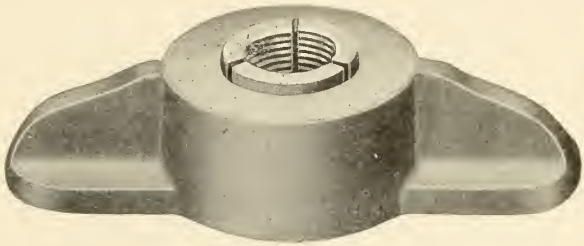
VALVE GRABS, PIPE PULLERS AND TONGS

VALVE GRAB
No. 614

For removing bale top tubular check valves from wells; made of spring steel and of ample strength for any size valve.

Price.....each 1.50

PIPE PULLER
No. 624



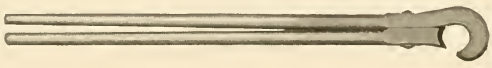
Made to draw all sizes of pipe. Serrated dies hold the pipe firmly but do not crush it. Coupling of the pipe will pass through the puller. Each puller furnished with one set of dies without extra charge.

No.	With Dies for Pipe	Price
2	1, 1¼, 1½ or 2 inch	2.75
3	2, 2½ or 3 inch	5.00
4	3½ or 4 inch	8.50
5	4, 4½ or 5 inch	10.00
6	4, 4½, 5 or 6 inch	12.00
8	6, 7 or 8 inch for 4 jack screws	15.00
10	7, 8, 9 or 10 inch for 4 jack screws	25.00

EXTRA DIES FOR PIPE PULLERS

To pull pipe in.	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
For No. 2 each	.80	.75	.50	.50	....	....	....	....	....	....	....	....	....
" " 3 "	...	...	...	.80	.75	.75	....	....	....	....	....	....	....
" " 4 "	...	...	...	...	....	2.25	2.00	1.75	....	....	....	....	....
" " 5 "	...	...	...	...	....	3.25	3.00	2.75	2.50	2.00	....	....	....
" " 6 "	...	...	...	...	....	....	....	3.00	2.75	2.50	2.25	....	....
" " 8 "	...	...	...	...	....	....	....	....	....	....	4.00	3.50	3.00
" " 10 "	...	...	...	...	....	....	....	....	....	....	....	....	7.00

LIFTING TONGS
No. 613



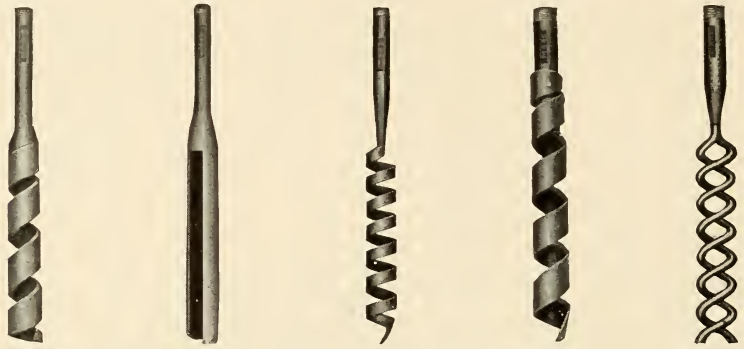
SLIDING TONGS
No. 612

Size Pipe.....inches	¾	1	1¼	1½	2
Price, Either Style.....each	4.00	4.50	5.00	5.50	6.00

EARTH AUGERS AND SAND PUMPS

EARTH AUGERS

No. 600 No. 601 No. 602 No. 603 No. 604



Hole Auger will make...inches	2	2½	3	3½	4	4½	5	6
No. 600 Chisel Bit.....each	6.00	6.50	7.00	8.50	10.00	15.00	20.00	25.00
" 601 Pod..... "	6.00	6.50	7.00	8.50	10.00	15.00	20.00	25.00
" 602 Ribbon..... "	6.00	6.50	7.00	8.50	10.00	15.00	20.00	25.00
" 603 Twist..... "	6.00	6.50	7.00	8.50	10.00	15.00	20.00	25.00
" 604 Spiral..... "	6.00	6.50	7.00	8.50	10.00	15.00	20.00	25.00

No. 629 SAND PUMP

Size of Well.....inches	2	2½	3	4	5	6	7	8
Price.....each	2.50	2.75	3.00	4.00	5.00	6.00	7.00	8.00

SAND PUMPS AND DRILLS

No. 616

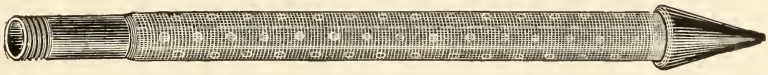
No. 615

Fitted for Pipe.....inches	1	1	1¼	**2**
For Well.....inches	2	2½	3	4
Price.....each	2.00	3.00	4.00	**5.00**

Please order by trade number.

McDONALD'S WIRE-COVERED DRIVE WELL POINTS

GALVANIZED

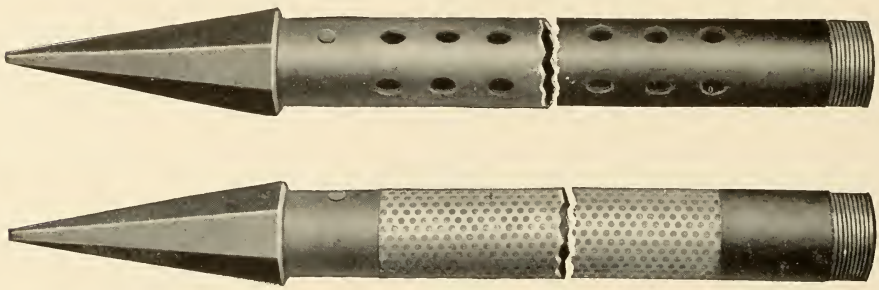


This Point is so constructed that it gives a larger supply of water than any other protected point in the market. It has been given the preference over all others, especially in quicksand soil. It has an inner covering of gauze, and is wrapped spirally around outside with a protection of brass wire, soldered lengthwise between each row of holes, while not obstructing the flow of water.

Trade No.	Size Pipe Inches	Length of Point Inches	Length of Jacket Inches	No. of Holes	Price, per Dozen — Number of Gauze 60	70	80	90	100
W1	1	24	18	80	40.00	48.00	55.00	62.50	74.50
W2	1	30	24	100	50.50	58.75	67.25	76.75	93.50
W3	1	36	30	120	61.25	70.75	79.25	91.25	113.00
W4	1	42	36	140	72.00	81.50	91.25	105.50	144.00
W5	1	48	42	160	83.00	93.50	103.25	120.00	163.25
W6	1	54	48	190	93.50	104.50	115.25	134.50	182.50
W7	1¼	20	14	80	36.00	43.25	50.50	60.00	77.00
W8	1¼	24	18	100	43.25	52.50	62.50	72.00	96.00
W9	1¼	30	24	125	55.25	66.00	76.75	90.00	120.00
W10	1¼	36	30	150	67.25	79.25	91.25	108.00	144.00
W11	1¼	42	36	175	79.25	92.50	105.50	126.00	168.00
W12	1¼	48	42	200	91.25	105.50	120.00	144.00	192.00
W13	1¼	54	48	250	103.00	118.75	134.50	162.00	216.00
W14	1¼	60	54	300	115.00	132.00	148.50	180.00	240.00
W15	1¼	66	60	325	127.00	145.00	163.00	198.00	264.00
W16	1¼	72	66	350	139.00	158.00	177.50	216.00	288.00
W17	1½	24	18	120	57.50	68.50	78.00	93.50	113.00
W18	1½	30	24	160	72.00	84.00	96.00	115.00	141.50
W19	1½	36	30	200	86.50	101.00	114.00	137.00	170.50
W20	1½	42	36	230	101.00	116.50	132.00	158.50	199.00
W21	1½	48	42	270	115.00	133.25	150.00	180.00	216.00
W22	1½	54	48	310	129.50	148.75	168.00	201.50	245.00
W23	1½	60	54	350	144.00	165.50	176.00	223.50	273.50
W24	1½	66	60	390	158.50	181.25	204.00	244.75	302.00
W25	1½	72	66	420	172.75	198.00	222.00	266.00	331.25
W26	2	24	18	175	90.00	102.00	112.75	132.00	156.00
W27	2	30	24	220	108.00	121.00	134.50	158.50	192.00
W28	2	36	30	260	126.00	141.50	156.00	185.00	228.00
W29	2	42	36	290	140.00	160.75	177.50	211.00	264.00
W30	2	48	42	330	162.00	181.25	199.25	237.50	300.00
W31	2	54	48	380	180.00	200.50	221.00	264.00	336.00
W32	2	60	54	430	198.00	221.00	242.50	290.50	372.00
W33	2	66	60	480	216.00	240.00	264.00	316.50	408.00
W34	2	72	66	530	234.00	260.50	285.50	343.25	444.00
W35	2½	36	30	300	198.00	225.00	253.00	312.00	330.00
W36	2½	48	42	360	253.00	291.50	330.00	374.00	440.00
W37	2½	60	54	420	308.00	357.50	407.00	462.00	550.00
W38	2½	72	66	480	363.00	423.50	484.00	550.00	660.00
W39	3	36	30	300	264.00	302.50	341.00	374.00	451.00
W40	3	48	42	420	330.00	379.50	429.00	473.00	572.00
W41	3	60	54	540	396.00	456.00	517.00	572.00	693.00
W42	3	72	66	660	462.00	533.00	605.00	671.00	818.00
W43	4	48	36	360	528.00	572.00	616.00	660.00	770.00
W44	4	72	60	600	693.00	764.50	836.00	924.00	1100.00
W45	4	96	84	840	858.00	957.00	1056.00	1188.00	1430.00
W46	4	120	108	1080	1023.00	1149.50	1276.00	1452.00	1760.00

BRASS JACKET DRIVE WELL POINTS

GALVANIZED



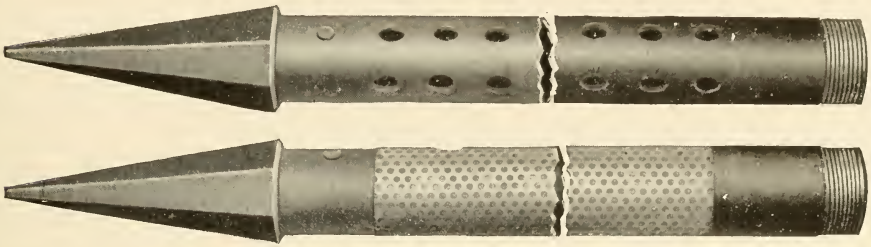
Trade No.	Size Pipe Inches	Length Point Inches	Length Jacket Inches	Approx. Openings Square Inches	Price, per Dozen — Number of Gauze 60	70	80	90	100	120
74	1	24	18	15	33.00	40.00	46.00	52.00	62.00	74.00
76	1	30	24	20	42.00	49.00	56.00	64.00	78.00	94.00
78	1	36	30	25	51.00	59.00	66.00	76.00	94.00	114.00
80	1	42	36	30	60.00	68.00	76.00	88.00	120.00	134.00
82	1	48	42	35	69.00	78.00	86.00	100.00	136.00	154.00
84	1	54	48	40	78.00	87.00	96.00	112.00	152.00	174.00
84½	1	60	54	45	87.00	96.00	106.00	124.00	168.00	194.00
85	1	66	60	50	96.00	105.00	116.00	136.00	184.00	214.00
85½	1	72	66	55	105.00	114.00	126.00	148.00	200.00	234.00
86	1¼	20	14	15	30.00	36.00	42.00	50.00	64.00	80.00
90	1¼	24	18	20	36.00	44.00	52.00	60.00	80.00	105.00
94	1¼	30	24	26½	46.00	55.00	64.00	75.00	100.00	130.00
98	1¼	36	30	33	56.00	66.00	76.00	90.00	120.00	155.00
100	1¼	42	36	39½	66.00	77.00	88.00	105.00	140.00	180.00
102	1¼	48	42	45½	76.00	88.00	100.00	120.00	160.00	205.00
106	1¼	54	48	52	86.00	99.00	112.00	135.00	180.00	230.00
110	1¼	60	54	58½	96.00	110.00	124.00	150.00	200.00	255.00
112	1¼	66	60	65	106.00	121.00	136.00	165.00	220.00	280.00
114	1¼	72	66	71½	116.00	132.00	148.00	180.00	240.00	305.00
114½	1¼	78	72	78	126.00	143.00	160.00	195.00	260.00	330.00
136	1½	24	18	22½	48.00	57.00	65.00	78.00	94.00	112.00
140	1½	30	24	30	60.00	70.00	80.00	96.00	118.00	139.00
144	1½	36	30	37½	72.00	84.00	95.00	114.00	142.00	166.00
146	1½	42	36	45	84.00	97.00	110.00	132.00	166.00	193.00
148	1½	48	42	52½	96.00	111.00	125.00	150.00	188.00	220.00
150	1½	54	48	60	108.00	124.00	140.00	168.00	204.00	247.00
152	1½	60	54	67½	120.00	138.00	155.00	186.00	228.00	274.00
154	1½	66	60	75	132.00	151.00	170.00	204.00	252.00	301.00
156	1½	72	66	82½	144.00	165.00	185.00	222.00	276.00	328.00

Points 20 and 30 gauze furnished to order at the list of 70 gauze, also 40 and 50 gauze at the list of 60 gauze.

Always order by trade number.

BRASS JACKET DRIVE WELL POINTS

GALVANIZED



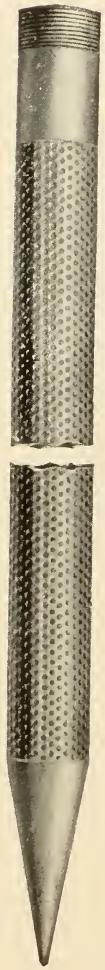
Trade No.	Size Pipe Inches	Length Point Inches	Length Jacket Inches	Approx. Openings Square Inches	Price, per Dozen — Number of Gauze 60	70	80	90	100	120
160	2	24	18	26	75.00	85.00	94.00	110.00	130.00	150.00
164	2	30	24	35	90.00	101.00	112.00	132.00	160.00	185.00
168	2	36	30	43½	105.00	118.00	130.00	154.00	190.00	220.00
170	2	42	36	52½	120.00	134.00	148.00	176.00	220.00	255.00
172	2	48	42	62	135.00	151.00	166.00	198.00	250.00	290.00
174	2	54	48	70	150.00	167.00	184.00	220.00	280.00	325.00
176	2	60	54	78½	165.00	184.00	202.00	242.00	310.00	360.00
178	2	66	60	87½	180.00	200.00	220.00	264.00	340.00	395.00
180	2	72	66	96	195.00	217.00	238.00	286.00	370.00	430.00
180½	2	78	72	105	210.00	234.00	256.00	308.00	400.00	465.00
182	2	84	78	113	225.00	251.00	274.00	330.00	430.00	500.00
182½	2	90	84	122½	240.00	268.00	292.00	352.00	460.00	535.00
183½	2	96	90	132	255.00	285.00	310.00	374.00	490.00	570.00
183	2½	30	24	40	155.00	175.00	195.00	220.00	250.00	290.00
184	2½	36	30	50	180.00	205.00	230.00	260.00	300.00	350.00
188	2½	48	42	70	230.00	265.00	300.00	340.00	400.00	470.00
192	2½	60	54	90	280.00	325.00	370.00	420.00	500.00	590.00
196	2½	72	66	110	330.00	385.00	440.00	500.00	600.00	710.00
197	2½	84	78	130	380.00	445.00	510.00	580.00	700.00	830.00
199	2½	96	90	150	430.00	505.00	580.00	660.00	800.00	950.00
200	3	36	30	67½	240.00	275.00	310.00	340.00	410.00	490.00
204	3	48	42	94½	300.00	345.00	390.00	430.00	520.00	630.00
208	3	60	54	111½	360.00	415.00	470.00	520.00	630.00	770.00
212	3	72	66	138½	420.00	485.00	550.00	610.00	740.00	910.00
214	3	84	78	165½	480.00	555.00	630.00	700.00	850.00	1050.00
215	3	96	90	192½	540.00	625.00	710.00	790.00	960.00	1190.00
202	3½	36	30	70	300.00	345.00	390.00	430.00	520.00	610.00
206	3½	48	42	98	360.00	415.00	470.00	520.00	630.00	750.00
210	3½	60	54	126	420.00	485.00	550.00	610.00	740.00	890.00
213	3½	72	60	140	480.00	555.00	630.00	700.00	850.00	1030.00
218	3½	84	72	168	555.00	640.00	725.00	805.00	960.00	1170.00
219	3½	96	84	196	630.00	735.00	820.00	900.00	1070.00	1310.00
216	4	48	36	90	480.00	520.00	560.00	600.00	700.00	810.00
220	4	72	60	150	630.00	695.00	760.00	840.00	1000.00	1270.00
224	4	96	84	210	780.00	870.00	960.00	1080.00	1300.00	1610.00
228	4	120	108	270	930.00	1045.00	1160.00	1320.00	1600.00	2010.00

Points 20 and 30 gauze furnished to order at the list of 70 gauze, also 40 and 50 gauze at the list of 60 gauze.

Always order by trade number.

FLUSH OR TUBULAR WELL POINTS

GALVANIZED



Trade No.	Size Pipe Inches	Length Point Inches	Length Jacket Inches	Approx. Openings Square Inches	Price, per Dozen — Number of Gauze 60	70	80	90	100
73	1	30	18	15	34.00	40.00	45.00	50.00	55.00
75	1	36	18	15	38.00	44.00	50.00	56.00	66.00
75½	1	36	24	20	43.00	49.00	55.00	62.00	77.00
77	1	42	24	20	47.00	54.00	60.00	68.00	82.00
77½	1	42	30	25	52.00	59.00	65.00	74.00	93.00
79	1	48	30	25	56.00	63.00	70.00	80.00	98.00
79½	1	48	36	30	61.00	68.00	75.00	86.00	109.00
81	1	54	36	30	65.00	73.00	80.00	92.00	114.00
81½	1	54	42	35	70.00	78.00	85.00	98.00	125.00
83	1	60	42	35	74.00	82.00	90.00	104.00	130.00
116	1¼	24	18	20	36.00	44.00	52.00	60.00	80.00
117	1¼	30	18	20	41.00	49.00	57.00	65.00	85.00
117½	1¼	30	24	28	46.00	55.00	64.00	75.00	100.00
118	1¼	36	24	28	51.00	60.00	68.00	80.00	105.00
119	1¼	42	24	28	56.00	65.00	73.00	85.00	110.00
120	1¼	48	24	28	61.00	70.00	78.00	90.00	115.00
121	1¼	36	30	36	56.00	66.00	76.00	90.00	120.00
122	1¼	42	30	36	61.00	71.00	80.00	95.00	125.00
123	1¼	48	30	36	66.00	76.00	85.00	100.00	130.00
124	1¼	54	30	36	71.00	81.00	91.00	105.00	135.00
125	1¼	42	36	39	66.00	77.00	88.00	105.00	140.00
126	1¼	48	36	39	71.00	82.00	92.00	110.00	145.00
127	1¼	54	36	39	76.00	87.00	97.00	115.00	150.00
128	1¼	60	36	39	81.00	92.00	102.00	120.00	155.00
129	1¼	48	42	45½	76.00	88.00	100.00	120.00	160.00
130	1¼	54	42	45½	81.00	92.00	104.00	125.00	165.00
130½	1¼	60	42	45½	86.00	98.00	110.00	130.00	170.00
131	1¼	66	42	45½	91.00	103.00	115.00	135.00	175.00
131½	1¼	54	48	52	86.00	99.00	112.00	135.00	180.00
132	1¼	60	48	52	91.00	104.00	116.00	140.00	180.00
133	1¼	66	48	52	96.00	109.00	122.00	145.00	185.00
135	1¼	72	48	52	101.00	114.00	127.00	150.00	190.00
570	1¼	60	54	58½	96.00	110.00	124.00	150.00	200.00
571	1¼	66	54	58½	101.00	115.00	129.00	155.00	205.00
572	1¼	72	54	58½	106.00	120.00	134.00	160.00	210.00
573	1¼	66	60	65	106.00	121.00	136.00	165.00	220.00
574	1¼	72	60	65	111.00	126.00	141.00	170.00	225.00
575	1¼	78	60	65	116.00	131.00	146.00	175.00	230.00
576	1¼	72	66	71½	116.00	132.00	148.00	180.00	240.00
577	1¼	78	66	71½	121.00	137.00	153.00	185.00	245.00
578	1¼	84	66	71½	126.00	142.00	158.00	190.00	250.00
579	1¼	78	72	78	126.00	143.00	160.00	195.00	260.00
580	1¼	84	72	78	131.00	148.00	165.00	200.00	265.00
581	1¼	90	72	78	136.00	153.00	170.00	205.00	270.00
582	1¼	84	78	84½	136.00	154.00	172.00	210.00	280.00
583	1¼	90	78	84½	141.00	159.00	177.00	215.00	285.00
584	1¼	96	78	84½	146.00	164.00	182.00	220.00	290.00

With riveted plug to permit driving the point from the inside.
Always order by trade number.

WASHER WELL POINTS

GALVANIZED

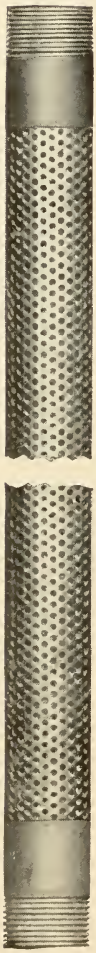
These Points are made of galvanized iron pipe, the drilled holes being countersunk, a piece of gauze set in each hole and then a washer riveted in place holding the gauze.

Trade No.	Size Pipe Inches	Length Point Inches	Number of Holes	Approx. Openings Square Inches	Price, per Dozen — Number of Gauze 60	70	80	90	100
300	1¼	20	50	6	30.00	36.00	42.00	50.00	64.00
301	1¼	24	60	7¼	36.00	44.00	52.00	60.00	80.00
302	1¼	30	80	9½	46.00	55.00	64.00	75.00	100.00
303	1¼	36	100	12	56.00	66.00	76.00	90.00	120.00
304	1¼	42	120	14½	66.00	77.00	88.00	105.00	140.00
305	1¼	48	140	17	76.00	88.00	100.00	120.00	160.00
308	1¼	24	80	9½	42.00	50.00	58.00	68.00	90.00
310	1¼	30	100	12	52.00	61.00	70.00	83.00	110.00
320	1½	24	80	9½	48.00	57.00	65.00	78.00	94.00
321	1½	30	110	13½	60.00	70.00	80.00	96.00	118.00
322	1½	36	130	15½	72.00	84.00	95.00	114.00	142.00
323	1½	42	150	18	84.00	97.00	110.00	132.00	160.00
323½	1½	48	170	20½	96.00	111.00	125.00	150.00	180.00
324	2	30	140	17	90.00	101.00	112.00	132.00	160.00
325	2	36	170	20½	105.00	118.00	130.00	154.00	190.00
326	2	42	200	24	120.00	134.00	148.00	176.00	220.00
327	2	48	230	27½	135.00	151.00	166.00	198.00	250.00
328	2	54	260	31½	150.00	167.00	184.00	220.00	280.00
329	2	60	290	35	165.00	184.00	202.00	242.00	310.00
330	2	66	320	38½	180.00	200.00	220.00	264.00	340.00
331	2	72	350	42	195.00	217.00	238.00	286.00	370.00
332	2½	36	225	27	180.00	205.00	230.00	260.00	300.00
333	2½	48	325	39	230.00	265.00	300.00	340.00	400.00
334	2½	60	425	51	280.00	325.00	370.00	420.00	500.00
335	2½	72	525	63	330.00	385.00	440.00	500.00	600.00
335½	2½	84	625	75	380.00	445.00	510.00	580.00	700.00
337	2½	96	725	87	430.00	505.00	580.00	660.00	800.00
338	3	36	250	30	240.00	275.00	310.00	340.00	410.00
339	3	48	360	43	300.00	345.00	390.00	430.00	520.00
342	3	60	470	56	360.00	415.00	470.00	520.00	630.00
346	3	72	580	69	420.00	485.00	550.00	610.00	740.00
348	3	84	690	82	480.00	555.00	630.00	700.00	850.00
350	3	96	800	95	540.00	625.00	710.00	790.00	960.00
370	4	48	440	50	480.00	520.00	560.00	600.00	700.00
374	4	72	660	78	630.00	695.00	760.00	840.00	1,000.00
378	4	96	1020	125	780.00	870.00	960.00	1,080.00	1,300.00
382	4	120	1380	175	930.00	1,045.00	1,160.00	1,320.00	1,600.00

Always order by trade number.

BRASS JACKET OPEN-END OR WELL POINT EXTENSION

GALVANIZED



Trade No.	Size Pipe Inches	Length Point Inches	Length Jacket Inches	Approx. Openings Square Inches	Price, per Dozen — Number of Gauze 60	70	80	90	100
91	1¼	24	18	19½	36.00	44.00	52.00	60.00	80.00
95	1¼	30	24	26	46.00	55.00	64.00	75.00	100.00
99	1¼	36	30	32½	56.00	66.00	76.00	90.00	120.00
101	1¼	42	36	39	66.00	77.00	88.00	105.00	140.00
103	1¼	48	42	45½	76.00	88.00	100.00	120.00	160.00
107	1¼	54	48	52	86.00	99.00	112.00	135.00	180.00
111	1¼	60	54	58½	96.00	110.00	124.00	150.00	200.00
134	1½	24	18	22½	48.00	57.00	65.00	78.00	94.00
141	1½	30	24	30	60.00	70.00	80.00	96.00	118.00
145	1½	36	30	37½	72.00	84.00	95.00	114.00	142.00
147	1½	42	36	45	84.00	97.00	110.00	132.00	166.00
149	1½	48	42	52½	96.00	111.00	125.00	150.00	188.00
151	1½	54	48	60	108.00	124.00	140.00	168.00	204.00
153	1½	60	54	67½	120.00	138.00	155.00	186.00	228.00
155	1½	66	60	75	132.00	151.00	170.00	204.00	252.00
157	1½	72	66	82½	144.00	165.00	185.00	222.00	276.00
165	2	30	24	35	90.00	101.00	112.00	132.00	160.00
169	2	36	30	43¾	105.00	118.00	130.00	154.00	190.00
171	2	42	36	52½	120.00	134.00	148.00	176.00	220.00
173	2	48	42	61¼	135.00	151.00	166.00	198.00	250.00
175	2	54	48	70	150.00	167.00	184.00	220.00	280.00
177	2	60	54	78¾	165.00	184.00	202.00	242.00	310.00
179	2	66	60	87½	180.00	200.00	220.00	264.00	340.00
181	2	72	66	96¼	195.00	217.00	238.00	286.00	370.00
185	2½	36	30	50	180.00	205.00	230.00	260.00	300.00
189	2½	48	42	70	230.00	265.00	300.00	340.00	400.00
191	2½	60	54	90	280.00	325.00	370.00	420.00	500.00
193	2½	72	66	110	330.00	385.00	440.00	500.00	600.00
201	3	36	30	67½	240.00	275.00	310.00	340.00	410.00
205	3	48	42	94½	300.00	345.00	390.00	430.00	520.00
209	3	60	54	121½	360.00	415.00	470.00	520.00	630.00
203	3½	36	30	67½	300.00	345.00	390.00	430.00	520.00
207	3½	48	42	94½	360.00	415.00	470.00	520.00	630.00
211	3½	60	54	121½	420.00	485.00	550.00	610.00	740.00
231	3½	72	66	148½	480.00	555.00	630.00	700.00	850.00
217	4	48	36	90	480.00	520.00	560.00	600.00	700.00
221	4	72	60	150	630.00	695.00	760.00	840.00	1000.00
225	4	96	84	210	780.00	870.00	960.00	1080.00	1300.00
229	4	120	108	270	930.00	1045.00	1160.00	1320.00	1600.00

Always order by trade number.

MORRIS PERFECTION DRIVE WELL POINTS

MALLEABLE IRON, GALVANIZED

These points are galvanized, malleable iron, cast in one piece so as to give them great strength for driving. They have almost twice the area of openings or filtering capacity of pipe points and are recommended where there is difficulty in getting an ample supply of water.

Trade No.	Size Pipe In.	Length Point In.	Length Jacket In.	Approx. Open-ings Sq. In.	Price, per Dozen — Number of Gauze 60	70	80	90	100
5	1	24	18	35	33.00	40.00	46.00	52.00	62.00
10	1	36	30	57	51.00	59.00	66.00	76.00	94.00
15	1¼	20	14	29	30.00	36.00	42.00	50.00	64.00
20	1¼	24	18	38	36.00	44.00	52.00	60.00	80.00
25	1¼	30	24	51	46.00	55.00	64.00	75.00	100.00
27	1¼	36	30	68	56.00	66.00	76.00	90.00	120.00
28	1¼	42	36	79	66.00	77.00	88.00	105.00	140.00
30	1½	24	18	39	48.00	57.00	65.00	78.00	94.00
35	1½	30	24	52	60.00	70.00	80.00	96.00	118.00
40	1½	36	30	65	72.00	84.00	95.00	114.00	142.00
45	2	24	18	57	75.00	85.00	94.00	110.00	130.00
50	2	30	24	75	90.00	101.00	112.00	132.00	160.00
55	2	36	30	93	105.00	118.00	130.00	154.00	190.00
56	2½	36	30	113	180.00	205.00	230.00	260.00	300.00
57	3	36	30	135	240.00	275.00	310.00	340.00	410.00

MORRIS PERFECTION FLUSH WELL POINTS

60	1¼	30	24	51	46.00	55.00	64.00	75.00	100.00
61	1¼	36	30	68	56.00	66.00	76.00	90.00	120.00
65	1¼	42	24	51	56.00	65.00	73.00	85.00	110.00
70	1¼	42	30	68	61.00	71.00	80.00	95.00	125.00
71	1¼	42	36	79	66.00	77.00	88.00	105.00	140.00

Always order by trade number.

LARGE WELL POINTS

GALVANIZED

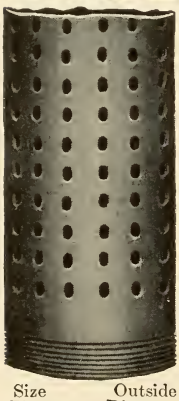
FOR WATER WORKS AND RAILROADS

No. 400

Size Pipe Inches	Price, per Foot — Number of Gauze 60	70	80	90	100
4½	4.00	4.50	5.00	5.50	6.00
5	5.00	5.75	6.50	7.25	8.00
6	5.80	6.50	7.25	8.00	9.00
7	7.00	7.75	8.50	9.25	10.50
8	8.50	9.25	10.00	11.00	12.00
9	11.00	12.00	13.00	14.00	15.00
10	13.00	14.00	15.25	16.50	18.00
12	16.00	17.00	18.50	20.00	22.00

Furnished with drift plug, flush plug or open end as ordered, but open end is sent unless otherwise specified.

Made of well casing at the same price; intermediate sizes are charged at the list of the next larger size.



IRRIGATION STRAINERS

GALVANIZED

These strainers are made of heavy pipe, galvanized after the holes are put in; they contain more than double the number of holes in our regular strainers, and are covered with a special woven wire cloth, having slotted openings. The cloth is nearly one-sixteenth of an inch in thickness, and is so constructed that every part of its surface permits of filtration.

These strainers are much stronger and more serviceable than all brass strainers, and have over four times the number of openings for the inlet of water. They can be used in wells having heavy pressure or suction without injury to the wire cloth.

For efficiency, heavy work and large filtering capacity these strainers have no equal.

No. 405

Size Pipe Inches	Outside Diameter Inches	Approx. Openings Square Inches per Foot	Price, per Foot — Number of Gauze 60	80	90	100
1	1.435	12	.60	.80	1.00	1.25
1¼	1.785	17	.75	.95	1.20	1.50
1½	2.025	22	.90	1.15	1.45	1.75
2	2.495	24	1.25	1.50	1.80	2.25
2½	2.995	27	2.00	2.75	3.25	3.75
3	3.625	30	2.75	3.50	4.00	4.50
3½	4.125	33	3.15	4.00	4.50	5.25
4	4.625	36	3.90	4.75	5.25	6.25
4½	5.125	39	4.50	5.50	6.25	7.25
5	5.685	42	5.25	6.50	7.50	8.25
6	6.745	48	6.00	7.50	8.25	9.25
7	7.745	51	7.50	9.00	9.50	10.75
8	8.745	54	9.00	10.50	11.50	12.50
9	9.805	60	12.00	14.00	15.00	16.00
10	10.875	67	14.00	16.50	18.00	20.00
12	12.875	72	18.00	20.50	22.50	25.00

Furnished with open ends unless ordered with driving plug. Six inches blank at each end of the strainer.

WELL STRAINERS

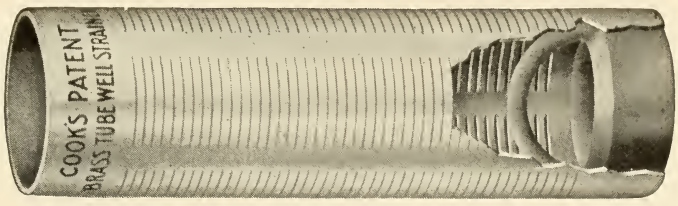


Plate ES631

These strainers are made of one piece of seamless brass tubing and have no iron connections, therefore will not corrode or rust. The slot openings are cut from the inside and are larger on the inside, therefore will not choke up. The slot style of cutting lets in more water in sand, than any other opening, and can be cut finer, if desired, than any other opening. These strainers are not drive well points, but used where pipe is sunk with open bottom.

Inside Diameter Well Pipe Inches	Length Feet	Number of Openings	Price Each	Inside Diameter Well Pipe Inches	Length Feet	Number of Openings	Price Each
2	2	1000	3.50	5	6	3400	24.00
2	4	2000	5.75	5	8	4600	30.50
2	6	3000	8.00	5	10	5800	37.00
2	8	4000	10.25	5	12	7000	43.50
2½	2	1000	4.00	5	14	8200	50.00
2½	4	2000	6.50	6	6	3900	30.00
2½	6	3000	9.00	6	8	5200	38.00
2½	8	4000	11.50	6	10	6500	46.00
3	2	700	5.00	6	12	7800	54.00
3	4	1400	8.00	6	14	9100	62.00
3	6	2100	11.00	6	16	10400	70.00
3	8	2800	14.00	6	18	11700	78.00
3	10	3500	17.00	6	20	13000	86.00
3	12	4200	20.00	7	6	5100	40.50
3½	2	800	6.75	7	8	6800	51.50
3½	4	1700	11.00	7	10	8500	62.50
3½	6	2600	15.25	7	12	10200	73.50
3½	8	3400	19.50	7	14	11900	84.50
3½	10	4300	23.75	7	16	13600	95.50
3½	12	5200	28.00	7	18	15300	106.50
4	4	1700	13.00	7	20	17000	117.50
4	6	2600	18.00	8	6	5700	51.00
4	8	3400	23.00	8	8	7600	65.00
4	10	4300	28.00	8	10	9500	79.00
4	12	5200	33.00	8	12	11400	93.00
4½	4	2300	14.50	8	14	13300	107.00
4½	6	3400	20.00	8	16	15200	121.00
4½	8	4600	25.50	8	18	17100	135.00
4½	10	5800	31.00	8	20	19000	149.00
4½	12	7000	36.50	8	22	20900	163.00

Strainers will be fitted at top end with lead packer, unless otherwise ordered.

Sizes here given are not actual diameters of strainers, but are the inside diameters of pipe in which strainer is to be used. Order by pipe size. Outside diameter of strainer is ¼ to ½ inch less than inside diameter of well pipe.

JOHNSON WELL SCREENS

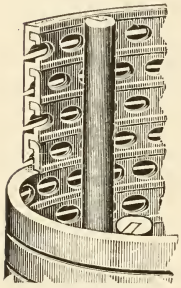


Plate E8641

The points that make the Johnson Well Screen different and its use desirable are: 1. Its endless inlet slot which gives greater intake for the water and offers no end to clog. 2. Its sharply undercut inlet lip which stays open where a sawed slit with parallel walls does not. 3. Its short-bridged inner wall which a wide inlet slot does not change or weaken. 4. Its re-enforcing rods of brass (used on 3-inch and over) which give great strength to the tube and do not obstruct the intake. These rods are soldered fast to the inside of the tube for its entire length and are hooked through the attachments.

SLOT NUMBERS IN 1000ths OF AN INCH

4 6 8 10 12 14 16 20 24 30 40 50 60

Plate E8642

LEAD PACKER

Plate E8643

THREADED TOP CONNECTIONS REGULAR

Plate E8644

SPECIAL

Plate E8645

BALE NIPPLE

Plate E8646

OPEN RING BOTTOM

Plate E8647

THREADED COUPLINGS

Plate E8648

POLLARD BOTTOM

Plate E8649

The lead packer is the standard top fitting for 3-inch and over and may be ordered as a special on 2 and 2½-inch screens.

Threaded top connections. 2-inch screen has 1¼-inch top standard; 2½-inch has 1½-inch standard, and 3-inch has 2-inch special. All screens 3½-inch and up may be ordered with their own size of male pipe threaded top or with a smaller size usually female threaded, at ⅓ advance over list price of attachments.

Bale nipple is the standard bottom fitting for all sizes.

Open ring bottom is furnished in place of the bale nipple, without extra charge.

Pollard bottom (patented) is used to wash screens into place. Furnished attached to the screen and with the set collar and right and left nipple for the wash line.

Diameter of Well Pipe ..... inches	2	2½	3	3½	4	4½	5
Lineal Feet of Inlet ..... per foot	30	39	48	56	65	74	82
Outside Diameter ..... inches	1¾	2¼	2¾	3¼	3¾	4¼	4¾
Diameter through Packer ..... "	1¼	2	2	2 7/16	2 15/16	3 7/16	3 15/16
Clear Opening through Coupling "	1¼	1½	2	2 3/16	2½	3 1/8	3½
Hole through Open Ring Bottom "	1¼	2	2	2¼	2½	2¾	3
Approx. Boxed Weight, per foot. pounds	4	4½	5	8	9	10	11
Price, Screen ..... per foot	2.00	2.50	3.00	3.50	4.00	4.50	5.20
" Attachments ..... per set	1.50	1.80	2.50	3.50	4.00	4.50	5.00
" Packer Swedge ..... each	3.50	3.75	4.00	4.50	5.00	5.75	6.50
Size of Wash Line for Pollard Bottoms ..... inches	½	¾	1	1	1½	2	2
Price, Pollard Bottoms ..... each	17.50	20.00	25.00	27.50	30.00	35.00	40.00

Diameter of Well Pipe ..... inches	6	8	10	12	14	15	18
Lineal Feet of Inlet ..... per foot	100	130	164	195	235	254	286
Outside Diameter ..... inches	5 5/8	7½	9½	11¼	13 5/8	14 5/8	16½
Diameter through Packer ..... "	4 13/16	6 11/16	8 11/16	10 7/16	12¾	13¾	15 3/8
Clear Opening through Coupling.. "	4 3/8	6¼	7 7/8	9 5/8	12¼	13¼	14 5/8
Hole through Open Ring Bottom.. "	3¾	5¾	7	9	10	11	13
Approx. Boxed Weight, per foot. pounds	12	16	22	28	38	42	50
Price, Screen ..... per foot	6.60	11.50	17.75	23.50	30.00	36.00	42.00
" Attachments ..... per set	6.00	8.00	18.00	24.00	30.00	36.00	42.00
" Packer Swedge ..... each	7.25	9.00	12.00	14.00	16.00	18.00	20.00
Size of Wash Line for Pollard Bottoms ..... inches	3	4	6	6	6	6	6
Price, Pollard Bottoms ..... each	45.00	60.00	75.00	90.00	110.00	120.00	140.00

Give diameter of well pipe, slot number, and length in ordering.

Screens will be shipped with standard fittings, unless otherwise specified.

GALVANIZED CHAIN PUMP CURB

NONE-SUCH

Plate E8651

Made of one piece of galvanized sheet steel, double seamed and riveted in the back, the upper and lower rims have one-quarter-inch wire enclosures, which gives the necessary length. The bottom corners are formed oval, which adds favorably to the appearance.

Malleable iron feet are fastened to the lower rim for fastening to the platform.

Painted a fine grey, nicely stenciled.

Price.....each **3.50**

IDEAL

Made of four pieces of heavy galvanized sheet steel tapering at the ends wider below than above, double seamed on the corners, with heavy malleable iron frames, riveted at the top and bottom. The lower frame has an extension base which drains all the water back in the cistern.

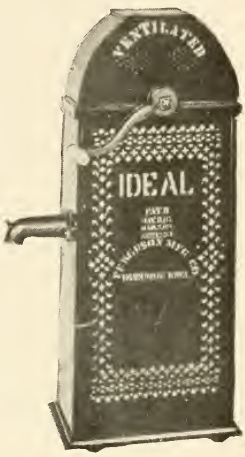


Plate E8652

It will not gather ice on the inside, being free and smooth without any projections.

The top or cap is so arranged that the spattering of the wheel cannot get outside, nor can the rain water get to the inside.

The fixtures are anti-freezing and noiseless, can be adjusted and replaced very easily. Painted grey and stenciled.

Price.....each **4.70**

GALVANIZED CHAIN PUMP TUBING

Plate E8653

Couplings are malleable iron and fitted on tubing before shipment. The upper part of top or reservoir section is tapered a little larger so that pump works easier and is perfect protection against freezing in winter. Top lengths can be furnished from 5 to 10 feet long, and lower lengths from 6 to 10 feet long. State length in ordering. The galvanized malleable coupling is charged extra.

RUBBER BUCKET

Plate E8654

Galvanized Chain Pump Tubing, 1⅝-inch	per foot	.10
" Malleable Couplings for Tubing	each	.25
Funnel or Bottom Ring for Galvanized Tubing	"	.10
Galvanized Chain, 3 feet to the pound	per pound	Market Price
Victor Rubber Buckets, 1⅝-inch	per dozen	1.50

REPAIRS FOR CURB FIXTURES

Wheels	each	.40	Large boxes	each	.20
Shafts	"	.20	Spouts	"	.25
Cranks	"	.30	Fixtures complete without spout or clamps		1.00
Small boxes	"	.10			

WATER ELEVATORS

No. 30 STAR

Plate E8661

This Star Water Elevator has curb made of seasoned lumber, carefully selected.
Price, with 25-foot Chain .....each **8.25**

No. 40 REGAL

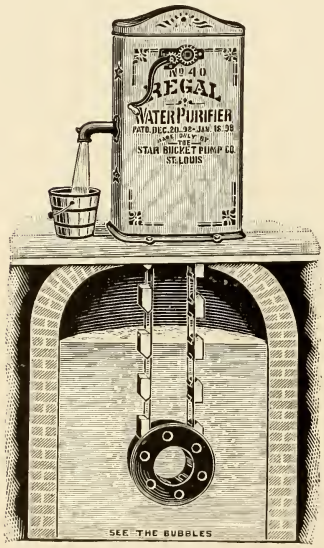


Plate E8662

The No. 40 Regal is made of galvanized iron with heavy hoops.
Price, with 25-foot Chain .....each **9.25**

No. 50 STAR

Plate E8663

Price, with 25-foot Chain.....each **10.50**

STAR CHAIN

Plate E8664

The Star Chain is made of galvanized iron. The buckets are double-seamed and riveted and are practically indestructible.
Price.....per foot **.17**

BARNES
NON-CHOKABLE DIAPHRAGM PUMPS

No. 869, SIDE SUCTION

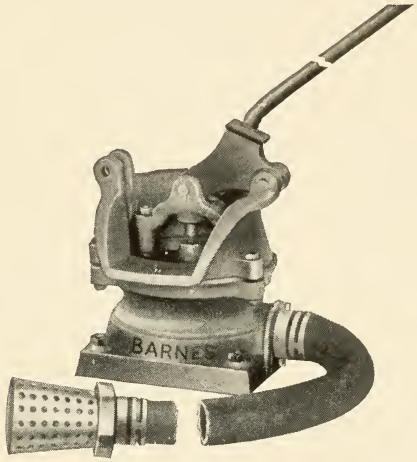


Plate E3671

For handling a large quantity of water with the minimum of labor no other hand pump compares with the diaphragm pump. It will successfully handle anything of a liquid nature and is used very largely by contractors and others for handling muddy or gritty water, quicksands, sewage, etc., while for flatboats, dredges and small vessels it is preferred to any other style of hand pump for removing waste water.

Barnes Diaphragm Pumps are of the most approved pattern, fulfilling Government specifications and are made of the very best material obtainable. The diaphragm, which corresponds with the plunger in other pumps, and is the most vital part of the pump, is made of the best quality of para rubber. The valves are metal, with heavy rubber faces, and are easily removable. Handle is of wrought iron and can be reversed and used vertically when desired. Lever socket can be placed on either side of pump to suit convenience of operator.

No. 869, SIDE SUCTION

Number	1	2	3
Size of Suction Hose ..... inches	2½	3	4
Capacity, per hour ..... gallons	1500	3500	6000
Price, Pump only ..... each	20.00	26.00	48.00
" " and 12 feet of *Suction Hose ..... "	44.00	58.00	105.00
" " " 15 " " " " ..... "	48.00	64.00	116.00
" " " 20 " " " " ..... "	56.00	74.00	134.00

No. 868, BOTTOM SUCTION

Number	1	2	3
Size of Iron Pipe ..... inches	2½	3	4
Capacity, per hour ..... gallons	1500	3500	6000
Price ..... each	18.00	24.00	37.00

*Trimmings included in outfit: Hose bands, galvanized suction strainer and brass couplings for connecting hose to pump and to strainer. Brass strainer can be furnished, when so ordered, at an extra charge.

McDONALD SUCTION PIPE STRAINERS

FOR OPEN WELLS AND CISTERNS

McDonald Suction Strainers are made with sufficient space in the openings to provide an ample supply of water. The 1¼-inch size is made of Malleable Iron, while all the other sizes are made of Cast Iron. Please note that we make these Strainers **PLAIN, GALVANIZED PLAIN** and **GALVANIZED, COVERED WITH BRASS WIRE CLOTH,** in both **SET SCREW** and **THREADED.**

SET SCREW

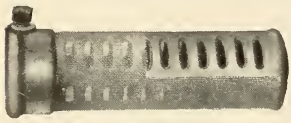


Plate E8681

THREADED

Plate E8682

SET SCREW

Size Pipe .....inches	¾	1	1¼	1½	2	2½	3
Galvanized, Covered with Brass Gauze.....each	.28	.28	.32	.36	.50	.70	1.00
" without Gauze..... "	.22	.22	.24	.26	.40	.60	.80
Plain..... "	.18	.18	.20	.24	.36	.50	.60

THREADED

Galvanized, Covered with Brass Gauze.....each	...	.28	.32	.36	.50	...	....
" without Gauze..... "	...	.22	.24	.26	.40	...	....
Plain..... "	...	.22	.24	.26	.40	...	....

SHORT SLOTTED STRAINER

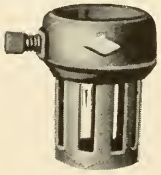


Plate E8683

GLOBE STRAINER

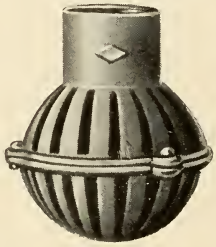


Plate E8684

SHORT SLOTTED STRAINER

This is a small short strainer with set screw to fasten it to the pipe. It is made in only one size, to fit 1¼-inch pipe.

Price.....each .18

GLOBE STRAINER

CAST IRON FOR SUCTION HOSE

These Strainers are made for use on the lower end of 2-inch suction hose. They have ample waterway to supply tank pumps.

For 2-inch Suction Hose.....each 1.00

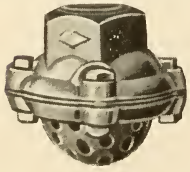


Plate E8685

CAST IRON FOOT VALVE AND STRAINER COMBINED

These are made in two halves with leather valve and valve seat bolted between. The lower half is perforated to act as a strainer.

Size Pipe .....inches	¾	1	1¼	1½	2
Black.....each	.42	.42	.48	.62	.82
Galvanized..... "	.60	.60	.75	1.00	1.45

CAST IRON CHECK VALVES

FOR COLD WATER

DIAMOND HORIZONTAL

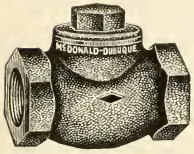


Plate E8691

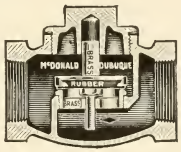


Plate E8692

STANDARD HORIZONTAL

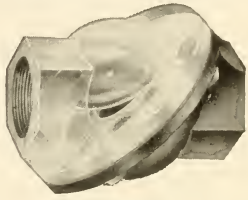


Plate E8693

Diamond Horizontal Check Valves are the result of many years experience in Pump and Water Supply Systems. The need of a **POSITIVE, DURABLE** and **SIMPLE** Horizontal Check Valve for Water and for Air and Water has long been recognized. We now offer these valves as the **BEST** for use on horizontal discharge pipes from pumps, whether used for water only, or for air and water combined.

WATERWAYS are **AMPLE** in size. **VALVE SEAT** is Brass so it will not rust or corrode. **PUPPET** is **BRASS,** guided below by the Cross Bar of Valve Seat and guided above by a hole of proper size in the Valve Cap. **DISC** is **HIGH-GRADE RUBBER, ENCASED** in the Puppet so that it will be permanent in shape and durable.

Size, Iron Pipe.....inches	¾	1	1¼	1½	2
Price.....each	2.00	2.00	3.00	3.00	4.00

STANDARD HORIZONTAL CHECK VALVES WITH LEATHER VALVE

Standard Horizontal Check Valves are made in two halves, fastened together by bolts, with common leather valve and weight between. Generally used on the discharge pipe of pumps to prevent back pressure and leakage.

Size.....inches	¾	1	1¼	1½	2
Price, Painted.....each	1.25	1.50	1.75	2.25	3.00
" Galvanized..... ..... "	1.75	2.00	2.50	3.25	4.25

SPECIAL HORIZONTAL

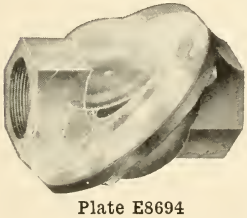


Plate E8694

VERTICAL WITH LEATHER VALVE

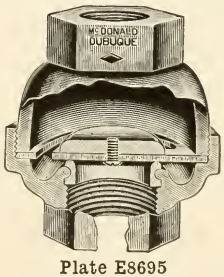


Plate E8695

VERTICAL WITH BRASS PATENT VALVE

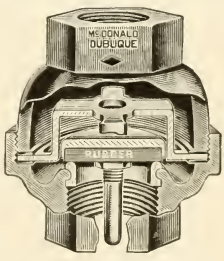


Plate E8696

The Special Horizontal has a rubber valve instead of leather, and is especially adapted for use in private waterworks systems and pressure tank systems.

Size.....inches	¾	1	1¼	1½	2
Price, Painted.....each	1.25	1.50	1.75	2.25	3.00
" Galvanized..... ..... "	1.75	2.00	2.50	3.25	4.25

The Vertical valves are generally used at the lower end of suction pipes under house pumps, also cylinders suspended in wells. We advise the use of McDonald Brass patent valve.

Size.....inches	1	1¼	1½	2	2½	3
Price, with Leather Valve.....each	1.75	2.00	2.50	3.00	4.25	6.00
" " Brass Patent Valve... "	2.50	2.75	3.25	4.25	....	....

WATER CONDUCTORS, CONNECTIONS, ETC.

McDONALD WATER CONDUCTORS

STANDARD

Plate E8701

This is one of the most convenient and desirable articles in the line of pump supplies. It is hung on the pump spout by a heavy wire bail.

Body is tapped for wrought pipe, so that a piece of pipe of proper length to reach tank or trough can be screwed into it. The Body revolves on the Swivel and Bail and permits the water to be delivered in any direction from the pump.

Black or Galvanized, in two sizes, Standard and Extra Large, and tapped for iron pipe as listed below. The Extra Large Water Conductor is tapped for 2-inch pipe only, and should be used with cylinders 3½ inches and larger in diameter.

EXTRA LARGE

Plate E8702

Smooth, strong castings, nicely finished and carefully threaded.

Size, Pipe.....inches	1¼	1½	2
Price, Standard Size, Black.....each	.50	.50	.50
" " " Galvanized..... "	.80	.80	.80
" Extra Large, Black..... "	...	...	1.50
" " " Galvanized..... "	...	...	2.25

GOOSENECK

Plate E8703

PUMP SPOUT CLEVISES FOR HOSE

Plate E8704

BLIND

Plate E8705

Size, Iron Pipe.....inches	¾	1	1¼	1½
Price, Gooseneck, Black.....each	.75	1.00	1.25	1.50
" " Galvanized..... "	1.50	2.00	2.50	3.00
" Pump Clevises..... "	.50	.50	....	....

COMPRESSION FROST HOLE VALVE

Plate E8706

McDONALD COMPRESSION FROST HOLE VALVE

FOR DEEP WELL PUMPS

As shown in illustration, the valve is clamped to the pipe where the frost hole has been drilled, and a leather washer with the hole in it placed between the valve and the pipe. The clamp is made of steel rod, but the valve is brass, and will not rust or corrode. The Valve is really a Brass Compression Valve, opening and closing with a half turn to the right or left. It always works easy.

When a valve is open, the water wastes toward the pipe, following it down the pipe, thus avoiding the water spurting out and washing down the side of the well.

Size.....inches	1	1¼	1½	2
Price.....each	1.50	1.50	2.00	2.00

FLOAT VALVES

DIAMOND

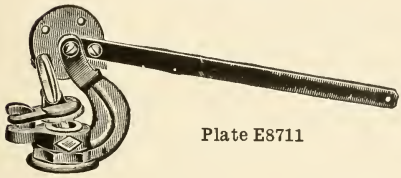


Plate E8711

ARCH PATTERN

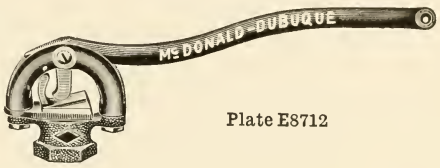


Plate E8712

Diamond has **WROUGHT IRON LEVER,** will not break. **BRASS VALVE SEAT,** will not corrode. **WROUGHT LINKS,** with **COPPER RIVETS,** connect lever with puppet. **VALVE CANNOT STICK,** as it is actuated by the movement of the lever. **LEATHER FACED PUPPET** has a **BRASS GUIDE** to keep it positively in position. **ADJUSTABLE;** changing the position of the lever makes it a Float Valve to be used for Bottom, Side or Top Supply; also makes it an Outlet Valve for Bottom or Side of the tank.

Arch Pattern has **VALVE WEIGHT,** which is attached to the leather valve, tapered so that the lever of float valve exerts a decided pressure against it, holding it tight against considerable water pressure.

BODY AND VALVE SEATS ARE BRASS, and will not corrode.

Size.....inches	¾	1	1¼	1½	2	2½	3	3½	4
Price, Diamond.....each	1.25	1.38	1.50	3.00	5.00	7.50	10.00	18.00	22.00
" Arch Pattern.. "	1.25	1.33	1.50	....	....	....	.....	.....	.....

DUBUQUE

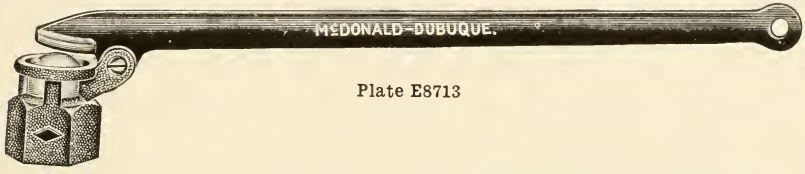


Plate E8713

BODY is Cast Brass, Hexagon, with a Concave Seat on which the Rubber Ball makes a tight joint. The Ball also acts as a check valve to prevent water from flowing back through the supply pipe. **LEVER** is Galvanized Cast Iron, so it will not rust; it is 18 inches long, giving the float ample power to close the valve when tank is full. **CAST BRASS BOLT** or Thumb Screw fastens Lever to Body. **ALL PARTS OF THIS VALVE ARE ANTI-RUST MATERIAL.**

Size.....inches	¾	1	1¼	1½
Price.....each	1.25	1.38	1.50	3.00

FLOATS FOR FLOAT VALVES

COMMON

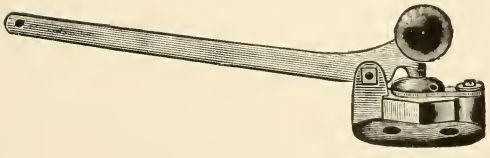


Plate E8714

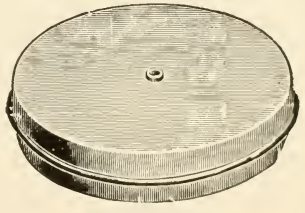


Plate E8715

COMMON

Size.....inches	¾	1	1¼	1½
Price.....each	1.20	1.20	1.25	1.25

FLOATS

Price, Copper, 3x9 inches....each **1.50** Price, Galvanized, 3x12 inches...each **1.25**

ROUND TANKS

WHITE PINE OR CYPRESS—FOR ALL PURPOSES

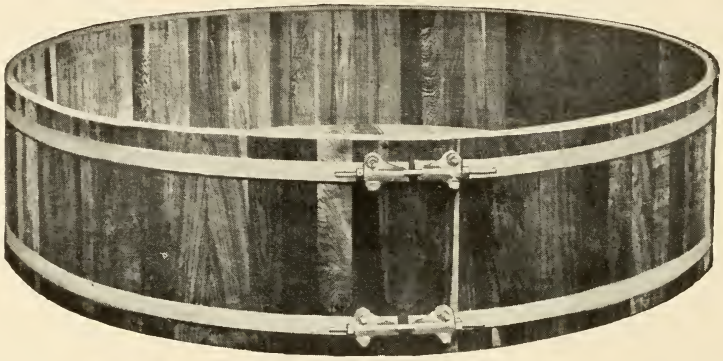


Plate E3721

Order by length of stave and diameter bottom only. All tanks are furnished with malleable iron adjustable lug hoops. Tanks are in all cases shipped knocked down, unless otherwise ordered.

List prices include the staves, bottoms, dowel pins, hoops with lugs complete with draw bolt, F.O.B. cars. Prices do not include covers, nor are painted tanks shipped unless specified in order. No charge made for painting pine tanks.

Length of Staves Feet	Diam. of Bottom Feet	No. of Hoops	Capacity Gallons	Capacity Barrels	Approx. Weight 2-in Pine Pounds	Approx. Weight 1½-in. Cypress Pounds	Approx. Weight 2-in. Cypress Pounds	Price 2-in Pine or 1½-in. Cypress Each	Price 2-in. Cypress Each
2	3	2	74	2	120	110	140	**5.80**	**7.20**
2	3½	2	103	3	150	140	175	**7.00**	**8.60**
2	4	2	138	4	170	155	200	**9.30**	**11.30**
2	5	2	221	7	230	215	265	**11.60**	**14.50**
2	5½	2	310	10	275	250	300	**13.30**	**15.50**
1⅔	6	2	260	8	270	255	300	**12.40**	**15.30**
1⅔	7	2	357	11	320	300	350	**14.50**	**18.10**
1⅔	8	2	470	15	390	375	420	**17.40**	**21.50**
1⅔	9	2	600	19	460	435	500	**20.40**	**25.80**
1⅔	10	2	745	24	540	515	580	**23.70**	**30.20**
1⅔	12	2	1082	35	750	700	800	**31.90**	**40.60**
2	6	2	347	11	300	285	325	**14.50**	**18.00**
2	7	2	446	14	380	365	410	**17.40**	**21.80**
2	8	2	588	19	425	395	460	**20.30**	**25.50**
2	9	2	750	24	540	500	600	**23.70**	**30.20**
2	10	2	931	30	600	575	660	**27.20**	**34.80**
2	12	2	1352	43	800	740	900	**36.00**	**46.40**
2	14	2	1870	59	1000	930	1100	**46.40**	**60.00**
2	16	2	2480	80	1250	1175	1375	**58.00**	**74.20**
2½	4	2	179	5½	200	185	240	**10.50**	**12.70**
2½	5	2	287	9	260	240	300	**13.00**	**16.20**
2½	6	2	421	13	335	320	370	**16.20**	**20.20**
2½	7	2	580	18	400	385	440	**19.70**	**24.40**
2½	8	2	764	24	460	430	500	**23.20**	**29.00**
2½	9	2	975	31	590	540	635	**27.20**	**34.20**
2½	10	2	1210	38	620	590	665	**31.00**	**39.00**
2½	12	3	1758	55	920	880	970	**40.60**	**51.70**
2½	14	3	2432	76	1220	1150	1300	**52.20**	**66.20**
2½	16	3	3100	100	1400	1300	1500	**66.20**	**83.50**

ROUND TANKS

WHITE PINE OR CYPRESS FOR ALL PURPOSES

CONTINUED

Length of Staves Feet	Diam. of Bottom Feet	No. of Hoops	Capacity Gallons	Capacity Barrels	Approx. Weight 2-in. Pine Pounds	Approx. Weight 1½-in. Cypress Pounds	Approx. Weight 2-in. Cypress Pounds	Price 2-in. Pine or 1½-in. Cypress Each	Price 2-in. Cyp. Each
3	5	3	441	14	320	300	350	**16.00**	**21.50**
3	6	3	550	17	370	340	410	**18.60**	**22.90**
3	7	3	800	25	450	400	490	**22.00**	**27.25**
3	8	3	955	30	560	500	620	**26.20**	**32.50**
3	9	3	1180	37	670	610	760	**30.70**	**38.30**
3	10	3	1438	45	800	725	880	**35.40**	**44.70**
3	12	3	2174	69	1060	980	1140	**44.70**	**56.80**
3	14	3	2950	92	1350	1270	1420	**58.00**	**73.00**
4	4	3	277	9	260	240	300	**13.80**	**20.90**
4	5	3	480	15	340	300	380	**18.20**	**22.00**
4	6	3	700	22	420	390	475	**22.40**	**27.50**
4	7	3	998	31	590	550	650	**26.50**	**32.70**
4	8	4	1290	40	660	600	700	**30.80**	**38.30**
4	9	4	1600	50	790	750	830	**35.40**	**44.30**
4	10	4	2080	64	880	800	950	**40.80**	**51.00**
5	4	4	355	12	310	280	350	**16.80**	**20.40**
5	5	4	575	19	400	360	450	**22.30**	**26.90**
5	6	4	900	29	500	450	550	**27.10**	**32.80**
5	7	4	1200	39	650	600	700	**32.70**	**38.80**
5	8	4	1600	52	800	740	850	**38.00**	**46.60**
5	9	5	2080	65	1000	920	1060	**43.20**	**50.80**
5	10	5	2600	82	1200	1100	1325	**50.00**	**61.50**
6	4	4	450	14	360	330	400	**19.60**	**23.60**
6	5	4	710	23	540	500	600	**25.30**	**30.60**
6	6	5	1100	35	600	520	650	**30.40**	**38.00**
6	7	5	1500	48	700	650	760	**36.60**	**44.60**
6	8	5	1950	61	810	750	920	**42.40**	**52.00**
6	9	5	2500	78	1000	900	1100	**49.50**	**61.80**
6	10	5	3150	98	1090	1000	1225	**57.60**	**70.80**
6	12	5	4480	140	1380	1260	1575	**69.80**	**86.80**
7	5	5	890	28	600	550	675	**29.60**	**35.70**
7	6	5	1300	41	650	600	750	**35.90**	**43.50**
7	7	5	1780	56	840	790	900	**42.20**	**51.70**
7	8	5	2350	74	920	850	1050	**48.70**	**59.80**
7	9	6	2900	92	1100	1000	1250	**57.70**	**70.20**
7	10	6	3720	118	1220	1100	1380	**64.20**	**79.80**
7	12	6	5400	170	1550	1400	1750	**80.50**	**99.00**
8	6	6	1490	47	740	670	830	**40.80**	**47.10**
8	7	6	2050	65	950	880	1025	**48.30**	**58.70**
8	8	6	2700	86	1030	950	1175	**56.90**	**68.60**
8	9	6	3400	106	1150	1050	1275	**65.60**	**79.60**
8	10	6	4280	136	1360	1250	1540	**73.80**	**90.60**
8	12	7	6220	197	1730	1600	1950	**90.90**	**111.00**
9	6	7	1640	53	950	890	1020	**43.20**	**53.30**
9	8	7	3000	95	1230	1120	1300	**61.00**	**74.20**
9	10	7	4750	150	1640	1520	1730	**79.40**	**96.80**

ROUND TANKS

WHITE PINE OR CYPRESS FOR ALL PURPOSES

CONTINUED

Length of Staves Feet	Diam. Bottom Feet	No. of Hoops	Capacity Gallons	Capacity Barrels	Approx. Weight, Pounds 2-inch Pine	Approx. Weight, Pounds 1½-inch Cypress	Approx. Weight, Pounds 2-inch Cypress	Price, Each 2-in. Pine or 1½-in. Cypress	Price, Each 2-inch Cypress
10	4	8	792	25	600	540	700	30.50	42.80
10	6	8	1880	59	805	740	880	47.70	60.00
10	7	8	2500	78	920	860	1000	58.20	70.20
10	8	8	3310	105	1250	1125	1400	68.20	81.60
10	9	8	4360	136	1500	1425	1600	78.40	94.50
10	10	8	5400	171	1680	1540	1900	88.60	107.40
10	12	8	....	241	2100	1920	2350	105.20	137.50
10	14	8	....	330	2500	2300	2800	134.00	172.40
10	16	9	....	434	2800	2600	3100	160.40	205.40
12	10	9	....	200	1900	1800	2200	103.00	131.80
12	12	10	....	283	2300	2250	2750	129.40	165.60
12	14	10	....	391	3000	2700	3400	167.50	212.90
12	16	10	....	514	....	....	4000	....	252.00
14	12	12	....	333	....	....	3250	....	190.50
14	14	13	....	458	....	....	3600	....	242.00
14	16	14	....	603	....	....	4600	....	288.00
16	14	15	....	525	....	....	4400	....	272.00
16	16	15	....	692	....	....	5200	....	327.00

Tank covers for tanks less than 6 feet in diameter are made of 1-inch matched lumber, and for 6 feet or larger are made of two thicknesses of boards with two hinged lids.

PINE TANK COVERS

Diameter...feet	3	3½	4	5	6	7	8	9	10	12
Price.....each	2.40	2.60	2.80	3.20	5.50	7.50	9.70	12.40	15.60	22.00

PINE CONICAL COVERS

Diameter.....feet	6	7	8	9	10	12	14	16
Price.....each	8.00	10.00	12.00	14.50	17.60	24.00	31.05	44.00

ROUND STORAGE OR CISTERN TANKS

All storage tanks are well made from selected white pine or cypress lumber and if properly set up will not leak. These, like the stock tanks, are furnished with malleable iron adjustable tank lugs with steel hoops. Where hoops of different widths are sent, the widest go at bottom and narrowest at top of tank.

The capacities are based on tanks with straight staves and unless otherwise ordered will be shipped in this manner. Prices do not include covers for tank. Tanks can be furnished with hoops and lugs galvanized. Write for prices and state whether flat or round hoops are desired.

All tanks above 20,000 gallons capacity are ordinarily made of thicker material than 2 inches. Write for prices on any size tank not mentioned in list, in either 2½ or 3-inch cypress.

ROUND STOCK TANKS

NATIONAL ROLLED PIPE RIM, ANGLE BOTTOM

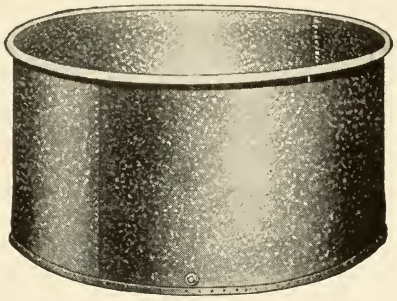


Plate E8751

These tanks are built to withstand severe usage. They are shipped set up as large as 2x8 or 2½x7½. The railroads will accept them for actual weight. Larger sizes will be sent sectionized or knocked down.

National Tanks are made with rolled pipe rim, angle bottom as illustrated. Gilt Edge Tanks are made of No. 20 and 22-gauge. Rolled pipe rim is used and there is no angle at bottom. Instead of being riveted they are double lock-seamed.

Universal Tanks are made of No. 20 gauge throughout. They have rolled pipe rim top and no angle at the bottom. The seams are riveted. Both Universal and Gilt Edge Tanks are made only in the round and round end.

National, Gilt Edge and Universal Tanks, same list as given below.

No.	Dimensions, Feet		Capacity Barrels	Price Each	No.	Dimensions, Feet		Capacity Barrels	Price Each
	Diam.	Height				Diam.	Height		
R-31	3	1	1½	7.20	R-73	7	3	26	26.90
R-315	3	1½	2¼	7.70	R-752	7½	2	20	24.70
R-32	3	2	3	8.20	R-7525	7½	2½	25	27.50
R-325	3	2½	3¾	9.40	R-753	7½	3	30	30.30
R-33	3	3	4½	10.60	R-82	8	2	22¾	28.00
R-352	3½	2	4	9.30	R-825	8	2½	28½	31.00
R-3525	3½	2½	5	10.70	R-83	8	3	34¼	34.00
R-353	3½	3	6	12.10	R-92	9	2	29	33.50
R-42	4	2	5	10.50	R-925	9	2½	36¼	36.50
R-425	4	2½	6¾	12.00	R-93	9	3	43½	39.50
R-43	4	3	8	13.60	R-102	10	2	36	39.00
R-452	4½	2	7	11.80	R-1025	10	2½	45	43.00
R-4525	4½	2½	8¾	13.50	R-103	10	3	54	47.00
R-453	4½	3	10½	15.20	R-112	11	2	43¾	46.00
R-52	5	2	8½	13.30	R-1125	11	2½	54¼	50.50
R-525	5	2½	10¾	15.30	R-113	11	3	65½	55.00
R-53	5	3	13	17.40	R-122	12	2	52	53.50
R-552	5½	2	10½	15.00	R-1225	12	2½	65¼	58.50
R-5525	5½	2½	13¼	17.50	R-123	12	3	78¼	63.50
R-553	5½	3	15¾	20.00	R-132	13	2	61¼	62.00
R-62	6	2	12½	17.00	R-1325	13	2½	76¾	67.50
R-625	6	2½	15¾	19.60	R-133	13	3	92	73.00
R-663	6	3	19	22.20	R-142	14	2	71¼	72.00
R-52	6½	2	14¾	19.20	R-1425	14	2½	89	78.00
R-6525	6½	2½	18½	21.90	R-143	14	3	107	84.00
R-653	6½	3	22¼	24.60	R-152	15	2	82	83.00
R-72	7	2	17¼	21.50	R-1525	15	2½	102½	90.00
R-725	7	2½	21½	24.20	R-153	15	3	123	97.00

SUPPLY OR STORAGE TANKS

Plate E8761

The capacity of all tanks is figured 31½ gallons to the barrel.

Prices given are based on No. 20-gauge galvanized steel, unless otherwise specified. If No. 18-gauge is wanted, add 30 per cent; No. 16-gauge, add 60 per cent; No. 14-gauge, add 90 per cent to price given on No. 20-gauge.

In ordering, please state exactly what is wanted. Order by number, height and diameter.

It will add to the life of steel tanks to have them painted inside. Tanks, if kept well filled with water, will last much longer than if allowed to partly dry.

Hoops are furnished if desired, but are not recommended or necessary. They do not strengthen the tank for holding liquid, as the pressure is on the seams.

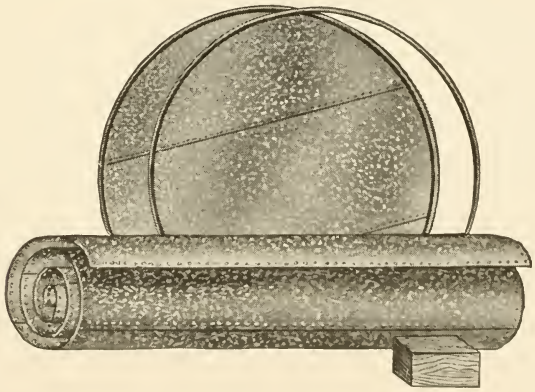
No.	Dimens., Feet		Capacity Barrels	Price Each	No.	Dimens., Feet		Capacity Barrels	Price Each
	Diam.	Height				Diam.	Height		
S-34	3	4	5¾	13.50	S-554	5½	4	21	24.00
S-35	3	5	7¼	15.90	S-555	5½	5	26½	28.50
S-36	3	6	8¾	18.30	S-556	5½	6	31½	33.00
S-37	3	7	10¼	20.70	S-557	5½	7	37	37.50
S-375	3	7½	11	22.00	S-5575	5½	7½	39¼	39.80
S-38	3	8	11¾	23.10	S-558	5½	8	42½	42.00
S-310	3	10	14¾	27.90	S-5510	5½	10	53	51.00
S-354	3½	4	8¼	15.00	S-64	6	4	25¼	29.00
S-355	3½	5	10¼	17.80	S-65	6	5	31½	34.10
S-356	3½	6	12¼	20.60	S-66	6	6	38	39.20
S-357	3½	7	14¼	23.40	S-67	6	7	44¼	44.30
S-3575	3½	7½	15½	24.80	S-675	6	7½	47½	46.90
S-358	3½	8	16½	26.20	S-68	6	8	53	49.40
S-3510	3½	10	20½	31.80	S-610	6	10	67¼	59.60
S-44	4	4	10¾	16.50	S-654	6½	4	29¾	33.00
S-45	4	5	13½	19.70	S-655	6½	5	37¾	38.40
S-46	4	6	16¼	22.90	S-656	6½	6	44¾	43.80
S-47	4	7	19	26.10	S-657	6½	7	55	49.20
S-475	4	7½	20½	27.70	S-6575	6½	7½	59	52.00
S-48	4	8	21¾	29.30	S-658	6½	8	63	54.60
S-410	4	10	27¼	35.70	S-6510	6½	10	78¾	65.40
S-454	4½	4	14	18.50	S-74	7	4	31¼	37.00
S-455	4½	5	17¼	22.10	S-75	7	5	43½	42.70
S-456	4½	6	20¾	25.70	S-76	7	6	52¼	48.50
S-457	4½	7	24½	29.30	S-77	7	7	63¾	54.30
S-4575	4½	7½	26¼	31.10	S-775	7	7½	68½	57.20
S-458	4½	8	28	32.90	S-78	7	8	73	60.10
S-4510	4½	10	35	40.10	S-710	7	10	91¼	71.70
S-54	5	4	17¼	21.00	S-754	7½	4	40	41.00
S-55	5	5	21¾	24.90	S-755	7½	5	50	47.20
S-56	5	6	26	28.80	S-756	7½	6	60	53.40
S-57	5	7	30¼	32.70	S-757	7½	7	73¼	59.60
S-575	5	7½	32½	34.70	S-7575	7½	7½	77	62.70
S-58	5	8	34¾	36.70	S-758	7½	8	83¾	65.80
S-510	5	10	43½	44.50	S-7510	7½	10	104½	78.20

SUPPLY OR STORAGE TANKS

CONTINUED

No.	Dimens., Feet		Capacity Barrels	Price Each	No.	Dimens., Feet		Capacity Barrels	Price Each
	Diam.	Height				Diam.	Height		
S-84	8	4	47	45.00	S-108	10	8	149	93.90
S-85	8	5	59½	51.60	S-1010	10	10	186½	110.00
S-86	8	6	71¼	58.20	S-1012	10	12	223¾	130.00
S-87	8	7	83½	64.80	S-114	11	4	90¼	70.50
S-875	8	7½	89½	68.10	S-115	11	5	112¼	79.50
S-88	8	8	95¼	71.40	S-116	11	6	135¼	88.50
S-810	8	10	119¼	84.60	S-117	11	7	159¼	97.50
S-94	9	4	60¾	53.00	S-1175	11	7½	169	102.00
S-95	9	5	75½	60.50	S-118	11	8	180½	106.50
S-96	9	6	90½	68.00	S-1110	11	10	225½	124.50
S-97	9	7	105¼	75.50	S-1112	11	12	270¾	145.50
S-975	9	7½	113¼	79.30	S-124	12	4	174¼	80.00
S-98	9	8	128¾	83.00	S-125	12	5	134¾	90.00
S-910	9	10	151	98.00	S-126	12	6	161	100.00
S-104	10	4	74½	61.50	S-127	12	7	188	110.00
S-105	10	5	93	69.60	S-1275	12	7½	201½	115.00
S-106	10	6	111¾	77.70	S-128	12	8	214¾	120.00
S-107	10	7	130½	85.80	S-1210	12	10	268½	140.00
S-1075	10	7½	139¾	89.90	S-1212	12	12	322¼	165.00

KNOCKED-DOWN TANKS READY FOR SHIPMENT



Order sizes to nest, if possible. This saves freight.

ROUND END OR OBLONG STOCK TANKS

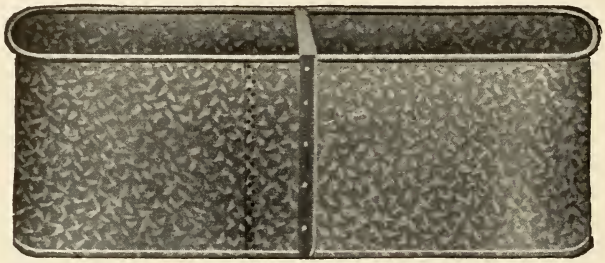


Plate E8781

Can be used as a creamery tank.

No.	Dimensions, Feet			Capacity Barrels	Price Each	No.	Dimensions, Feet			Capacity Barrels	Price Each
	Width	Height	Length				Width	Height	Length		
RE-1514	1½	1	4	1	7.00	RE-252510	2½	2½	10	12¾	24.20
RE-1515	1½	1	5	1⅓	8.30	RE-325	3	2	5	5½	12.40
RE-1518	1½	1	8	2⅓	12.00	RE-326	3	2	6	7	14.50
RE-214	2	1	4	1½	7.60	RE-327	3	2	7	8¼	16.60
RE-215	2	1	5	1¾	8.80	RE-328	3	2	8	9½	18.70
RE-216	2	1	6	2¼	10.00	RE-3210	3	2	10	12¼	22.90
RE-217	2	1	7	2⅓	11.20	RE-3212	3	2	12	15	27.30
RE-218	2	1	8	3¼	12.40	RE-3214	3	2	14	17¾	31.50
RE-2110	2	1	10	4	14.80	RE-3255	3	2½	5	7	14.40
RE-2154	2	1½	4	2¼	8.00	RE-3256	3	2½	6	8¾	16.80
RE-2155	2	1½	5	2½	9.40	RE-3257	3	2½	7	10¼	19.20
RE-2156	2	1½	6	3½	10.80	RE-3258	3	2½	8	12	21.60
RE-2157	2	1½	7	4⅛	12.20	RE-32510	3	2½	10	15½	26.40
RE-2158	2	1½	8	4⅞	13.60	RE-32512	3	2½	12	18¾	31.40
RE-21510	2	1½	10	6⅛	16.40	RE-32514	3	2½	14	22	36.20
RE-224	2	2	4	3	8.40	RE-3525	3½	2	5	6½	13.50
RE-225	2	2	5	3¾	10.10	RE-3526	3½	2	6	8	15.80
RE-226	2	2	6	4½	11.80	RE-3527	3½	2	7	9¾	18.10
RE-227	2	2	7	5¼	13.50	RE-3528	3½	2	8	11¼	20.40
RE-228	2	2	8	6¼	15.20	RE-35210	3½	2	10	14¼	25.00
RE-2210	2	2	10	8	18.60	RE-35212	3½	2	12	17½	29.80
RE-2254	2	2½	4	3¾	9.40	RE-35214	3½	2	14	20¾	34.40
RE-2255	2	2½	5	4¾	11.40	RE-35255	3½	2½	5	8	15.60
RE-2256	2	2½	6	5¾	13.40	RE-35256	3½	2½	6	10	18.10
RE-2257	2	2½	7	7	15.40	RE-35257	3½	2½	7	12	20.60
RE-2258	2	2½	8	8	17.40	RE-35258	3½	2½	8	13¾	23.10
RE-22510	2	2½	10	10¼	21.40	RE-352510	3½	2½	10	18	28.10
RE-2524	2½	2	4	3¾	9.40	RE-352512	3½	2½	12	22	33.30
RE-2525	2½	2	5	4¾	11.30	RE-352514	3½	2½	14	26	38.30
RE-2526	2½	2	6	5¾	13.20	RE-428	4	2	8	12¾	21.60
RE-2527	2½	2	7	7	15.10	RE-4210	4	2	10	16¼	26.20
RE-2528	2½	2	8	8	17.00	RE-4212	4	2	12	20	31.00
RE-25210	2½	2	10	10¼	20.80	RE-4214	4	2	14	23½	35.60
RE-25254	2½	2½	4	4½	11.00	RE-4216	4	2	16	27¼	40.20
RE-25255	2½	2½	5	5½	13.20	RE-4258	4	2½	8	15¾	24.70
RE-25256	2½	2½	6	7¼	15.40	RE-42510	4	2½	10	20½	29.90
RE-25257	2½	2½	7	8¾	17.60	RE-42512	4	2½	12	25	35.30
RE-25258	2½	2½	8	10	19.80	RE-42514	4	2½	14	29½	40.50

Also furnished in larger sizes. Prices upon application.

TROUGHS AND DIPPING TANKS

ROUND BOTTOM TROUGHS

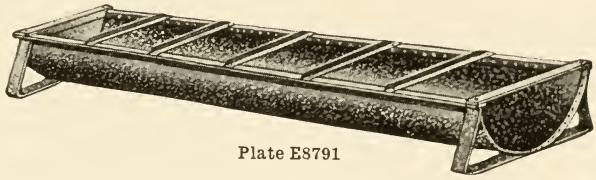


Plate E8791

Equipped with strong angle rims.

Dimensions, Inches		Price, Each—Length, Feet					
Width	Depth	3	4	5	6	8	10
12	6	2.35	2.85	3.35	3.85	4.75	5.65
14	7	2.90	3.40	3.90	4.40	5.40	6.40
18	9	3.80	4.30	4.85	5.40	6.70	8.00
18	12	4.35	5.10	5.80	6.55	8.25	9.90
24	12	4.75	5.45	6.15	6.85	8.45	10.05
30	15	5.75	6.55	7.35	8.15	9.95	11.75
36	18	6.75	7.75	8.75	9.75	11.95	14.15
42	21	8.00	9.05	10.10	11.15	13.40	15.65
48	24	9.05	10.25	11.45	12.65	15.25	17.85

INDIVIDUAL HOG FEED TROUGHS

Price, 12 inches wide, 6 inches Deep, 18 inches Long.....each	1.50

DIPPING TANKS FOR HOGS AND SHEEP

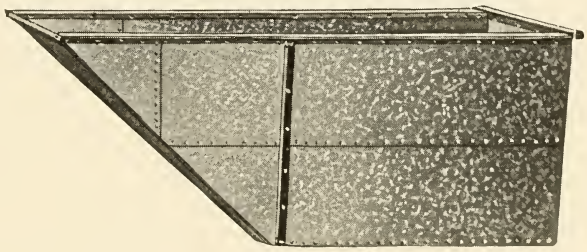


Plate E8792

Made of No. 20 gauge galvanized steel, closely riveted with 4-pound tinned rivets and strongly braced. Corners have heavy flange.

No.	Dimensions, Feet					Price Each	No.	Dimensions, Feet					Price Each
	Height	Length at Top	Length at Bottom	Width at Top	Width at Bottom			Height	Length at Top	Length at Bottom	Width at Top	Width at Bottom	
95	3	6	3	2	1	13.00	105	4	25	20	2	1	75.00
96	3	8	4	2	1	15.00	106	4	30	25	2	1	85.00
97	3½	8	4	2	1	16.50	107	4	35	30	2	1	100.00
98	3	10	5	2	1	18.50	108	3⅓	40	35	2	1	110.00
99	3½	10	5	2	1	19.00	109	4	45	40	2	1	115.00
100	4	8	4	2	1	18.00	110	4	50	45	2	1	125.00
101	4	10	5	2	1	20.00	111	4	55	50	2	1	135.00
102	4	14	10	2	1	38.00	112	4	60	55	2	1	145.00
103	4	15	10	2	1	42.00	113	6	25	15	2	2	120.00
104	4	20	15	2	1	60.00	....	....	....	....	....	....	....

WAGON TANKS

ROUND END

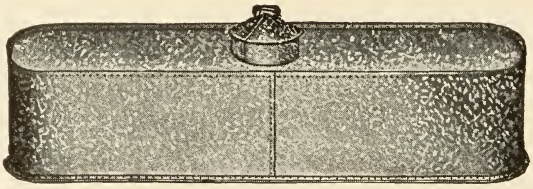


Plate E8801

Dimensions, Feet			Capacity Barrels	Price Each	Dimensions, Feet			Capacity Barrels	Price Each
Width	Height	Length			Width	Height	Length		
2	2	6	4½	20.00	3	2	8	9½	29.50
2	2	8	6¼	23.00	3	2	10	12¼	32.50
2½	2	8	8	26.00	3	2½	10	15	36.00
2½	2	10	10¼	30.00	....	....	....	....	....

OVAL BOTTOM

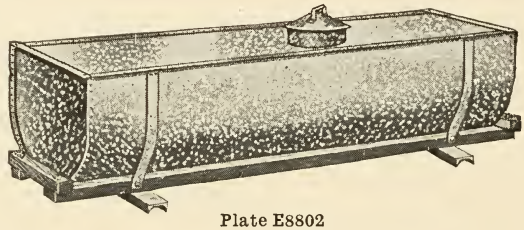


Plate E8802

For outlet or cleaning hole, unless otherwise requested, we furnish a brass connection or 1-inch hose pipe. The bolster plates are made to fit bolsters and extend down 1¾ inches.

All wagon tanks should be No. 18 gauge, or heavier. Prices based on No. 20 gauge. For No. 18 gauge, add 30 per cent; No. 16 gauge, add 60 per cent, and No. 14 gauge, add 90 per cent to list prices. The sides and bottoms are flanged together and riveted closely. In the center of tank is a 14-inch manhole with close-fitting cover.

Number	Dimensions, Inches			Capacity Barrels	Price Each
	Width	Height	Length		
O. B. W. 226	2	2	6	4½	22.00
" 228	2	2	8	6	25.30
" 2528	2½	2	8	7½	28.60
" 25210	2½	2	10	9½	33.00
" 328	3	2	8	9	31.50
" 3210	3	2	10	11¼	36.80
" 32510	3	2½	10	14½	39.60

For sideboards add 15 per cent to lists.

AUTOMATIC STOCK FOUNTAINS

FOR WATERING LIVE STOCK AND POULTRY

SIMPLE **INEXPENSIVE** **DURABLE** **FOOD SAVERS**

They furnish a constant supply of water without waste or causing mud holes.

DIAMOND

Patented

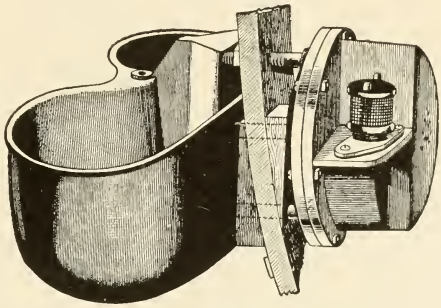


Plate E8811

It is easy to attach to tank or barrel, and furnishes a constant and reliable supply of water for live stock and poultry without waste.

VALVE CHAMBER, containing **FLOAT VALVE,** is on inside of tank or barrel, and will not freeze so long as water in tank is kept warm.

FLOAT VALVE in **VALVE CHAMBER** is brass, and has a copper float which will not corrode. It is reliable and tested, furnishing ample supply of water and preventing over flow of the drinking cup.

STRAINER is brass, and will not rust.

DRINKING CUP is strong and heavy. It is divided by a partition into two parts, which permits two animals to use it at the same time.

The strongest and best **STOCK WATERER** on the market. **WEIGHT** 19 pounds.

Price.....each 2.80

IOWA

This is a simple and durable article easily attached to barrels or tanks.

The **DRINKING CUP** is strong, with a partition in the center, which permits its use by two animals at the same time.

FLOAT VALVE is brass, and an adjustable copper float, protected by the cup partition, controls the supply of water, keeping the cup full at all times without waste or overflow.

STRAINER is covered with brass wire cloth, which excludes all foreign substances that would interfere with the operation of the **FLOAT VALVE.**

BEVELED IRON WASHERS, also **LEATHER WASHERS,** are furnished with each Fountain, so that a tight connection can be made to the tank or barrel.

WEIGHT 14 pounds.

Price.....each 2.00

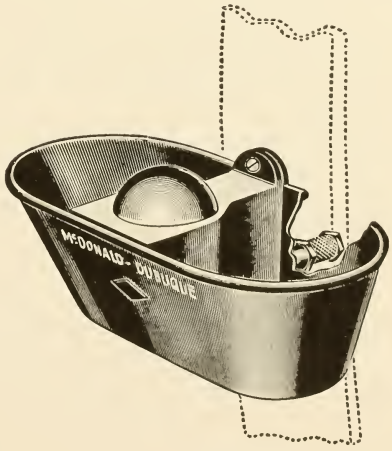
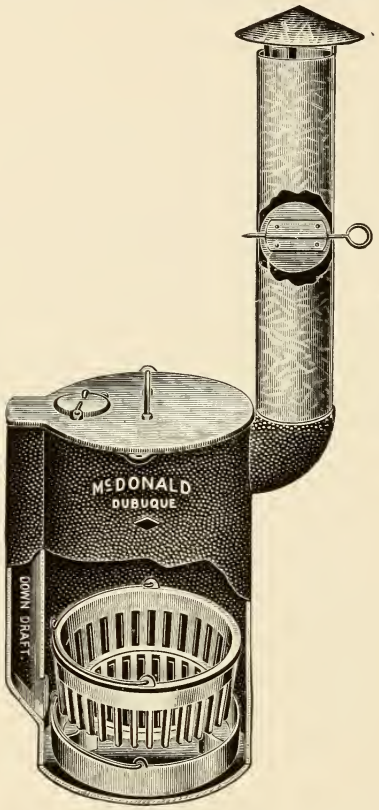


Plate E8812

DUBUQUE CAST IRON TANK HEATER

SIMPLE
AMPLE IN SIZE
EFFICIENT



VERY DURABLE
ALL CAST IRON EXCEPT
GALVANIZED SMOKE PIPE

Plate E8821

Above is shown our new Cast Iron Tank Heater which is suitable for all kinds of fuel.

BODY, DRAFT TUBE AND ELBOW for smoke pipe are cast in one piece, so there are no joints in the water and cannot leak.

CAST IRON ASH PAN below grate has a bail for convenience in removal when ashes are taken out.

BASKET GRATE is extra heavy to insure durability, and has a bail for convenience in removal.

COVER has a rim projecting down into body of heater, and can be revolved to control the draft; it also has a check draft which can be opened to control the fire. It lifts off without disturbing smoke pipe, giving full opening for supplying fuel and removing ashes.

SMOKE PIPE is 5-inch heavy Galvanized Iron, fitted with damper and hood.

DIAMETER 14 inches. **HEIGHT** 24 inches. **WEIGHT** 158 pounds.

This Heater is heavy enough to stay on the bottom of tank when cover, grate and ash pan are in place, but when these are removed to take out ashes, the body will float when tank is full of water. It requires 30 pounds additional weight to hold the body down, and we can furnish a weight, which bolts to the bottom of the Heater to make it self-anchoring. This weight is not necessary, as two 15-pound weights of any kind can be hung on the ears at the top of the body, to hold it down. Unless ordered Self-Anchoring, two anchoring screw rods are sent which can be used to screw into wood tanks to hold the Heater down. Hook for removal of Grate and Ash Pan sent with each Heater.

Price, as shown.....each **10.00** Price, with Self-anchoring Weight.....each **11.50**

ADJUSTABLE PUMP STAND

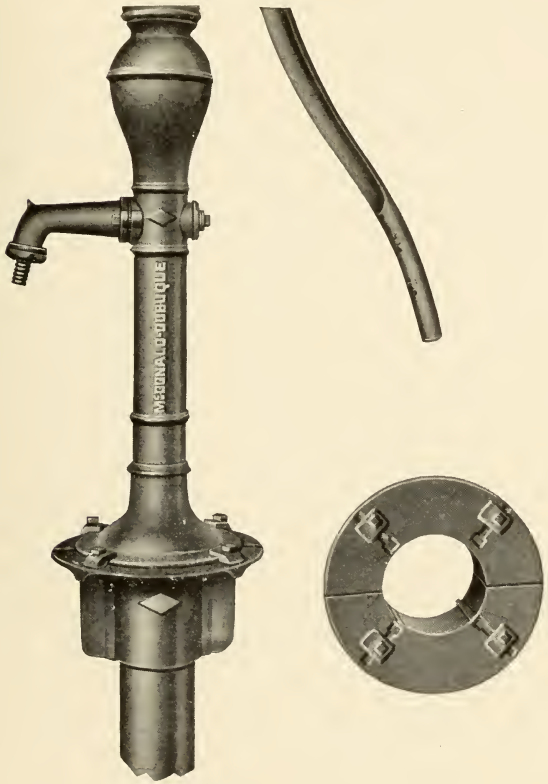


Plate E8831

Clamps tightly around well casing and is dirt and bug-proof.

A common monkey wrench is the only tool needed to attach it.

Simple and novel in construction.

Very strong, and any make of pump can be rigidly fastened to it by the adjustable clamps.

This illustration shows our Adjustable Pump Stand attached to well casing with pump clamped to it. Top view of stand is also shown. Four clamps which fasten pump base to stand are shown.

Clamps are adjustable and will rigidly fasten any ordinary pump to the stand.

It can be clamped to the casing at any desired height. Pump need not be removed from well to attach stand to casing; simply lift the pump a few inches and attach the stand.

Stand is clamped to the casing by four machine bolts, the upper bolts being ½ x 2 inch, the lower bolts ½ x 1½ inch.

The bolts fastening the pump to the stand are ⅜x1¼ inch. These bolts cannot fall through or out of the stand when nuts at upper end of bolts are removed, because the slot in which the bolts are placed is closed at the bottom, the head of the bolt entering the top of the slot at the inner end of slot.

This Pump Stand has been thoroughly tried out, and hundreds of satisfied customers testify to its worth. It saves expense and damage caused by pump not being securely fastened to the platform.

Satisfaction guaranteed or money refunded.

A Different Size is needed for each Size of Casing or Pipe.

Size, casing, inches 3, 3¼, 3½, 3¾, 4, 4¼, 4½, 4¾, 5, 5 3/16, 5⅝, 6¼.

Size, pipe, inches, 3, 3½, 4, 4½, 5, 6.

Price.....each **5.00**

The price is the same for all sizes.

DIAMOND WINDMILL PUMPING DEVICE

WERE YOU EVER OUT OF WATER WHEN THE WIND BLEW LIGHT?

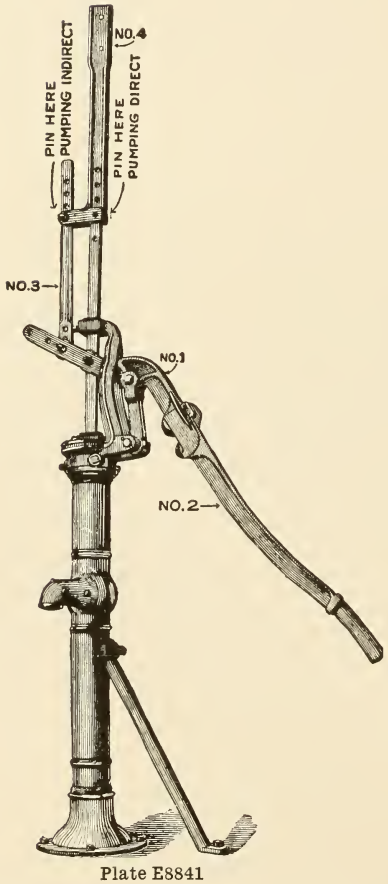


Plate E8841

You don't need a strong wind with this device; dealers in deep well territory can do business on this item.

Adjusted as shown here increases the leverage of the windmill 50% and reduces the stroke of the pump 50%, hence the windmill operates the pump with half the wind.

No gears or cogs, but results are exactly the same as if direct stroke windmill was back geared 2 to 1. Extra holes in extension of handle increases the leverage still further and reduces the stroke of the pump proportionately.

When the wind blows strong, the pin connecting No. 4 and No. 3 can be withdrawn and inserted to connect No. 4 direct to the slide rod of the pump, thus giving to the pump the full stroke of the mill.

The pin connecting the slide rod and the handle is never taken out.

The pin connecting No. 3 to the handle extension can be moved out still farther, increasing the power of the mill two-thirds and reducing the stroke to one-third, consequently the mill will operate in a very light wind by reason of this increased leverage.

The windmill connection No. 4 will fit any windmill rod.

The sectional handle No. 1 and No. 2 is worth the price of the whole device. No. 1 is always attached to the fulcrum and slide rod, while No. 2 can be attached in a moment without bolts, pins or tools and as quickly detached. No. 1 is so short that it is not a bit dangerous when moving up and down as the mill operates the pump. A weight balancing the weight of the pump rod can be hung on the handle end of No. 1 to assist the windmill.

Adapted for use with any 6-inch or 10-inch stroke windmill lift or force pump, but order must state which stroke is wanted. Holes in handle fit $\frac{5}{8}$-inch pin at fulcrum and $\frac{7}{16}$-inch pin at slide rod and at No. 3. The forks of the handle are adapted to fit 1x$\frac{1}{2}$-inch flat slide rod.

The windmill pumping device consists of four parts, No. 1, No. 2, No. 3, and No. 4, as shown, and price below does not include any other parts of the pump.

Price, as described.....per set **4.00**

AIR CHAMBERS

FOR USE ON DISCHARGE PIPES FROM POWER PUMPS

Following are shown three sizes of Air Chambers which are intended for use on the discharge pipes of Power Force Pumps and Working Heads. Air Chambers should be used when water is to be elevated above the pump or forced to a considerable horizontal distance. They are of real value under these conditions as they relieve the pump and cylinder of a great deal of strain and shock, and deliver a much more steady flow of water. **TESTED** with 100 pounds water pressure. These Air Chambers should be installed in the discharge pipes, as close to the pump as is practical.

PLATE E8851

This Air Chamber measures about 19 inches high and 6 inches diameter over all, and has a capacity of about 250 cubic inches. It is always sent as shown, attached to the 2-inch malleable tee by means of a 2-inch nipple.

Price, as shown, for 2-inch Pipe.....each **6.00**

Plate E8851

Plate E8852

PLATE E8852

This Air Chamber measures about 28 inches high over all, by 7 inches diameter, and has a capacity of about 560 cubic inches. It is flanged and is always sent with bolts and companion flanges tapped for 2½-inch pipe, which are not shown in the illustration.

Price, with Flanges for 2½-inch Pipe..... .....each **12.00**

PLATE E8853

This Air Chamber measures about 38 inches high over all by 10 inches diameter, and has a capacity of about 1550 cubic inches. Sent complete with bolts and companion flanges tapped for 3-inch or 4-inch pipe, as ordered. These companion flanges and bolts are not shown in illustration. The Air Chamber itself is flanged, and is bolted to the flanged tee.

Price, with Flanges for 3-inch Pipe.....each **30.00**
" " " " 4 " " ..... " **30.00**

Plate E8853

DEEP WELL WORKING HEADS

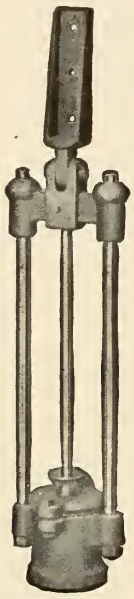


Plate E8861

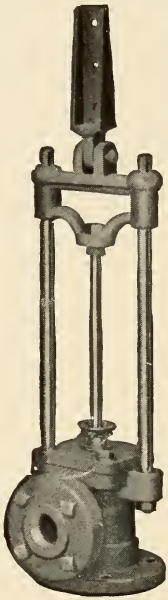


Plate E3862

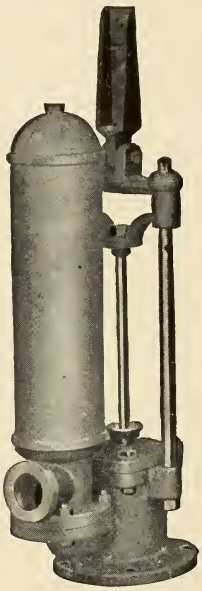


Plate E8863

By removing the Stuffing Box Flange the Plunger and Valve may be withdrawn.

Plate	E8861	E8862			E8863			
Stroke.....inches	16	16	24	30	10	16	10	16
Suction..... "	4	4½	4½	4½	3	3	4	4
Discharge..... "	...	2½	2½	2½	1½	1½	2½	2½
Price.....each	**15.00**	**20.00**	**23.00**	**25.00**	**20.00**	**23.00**	**25.00**	**28.00**

WINDMILL STUFFING BOX HEADS

No. 1

Plate E8864

No. 2

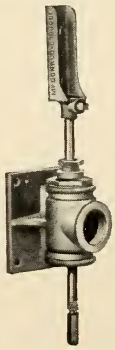


Plate E3865

No. 3

Plate E8866

No. 1 and No. 2 are made of Iron, with brass stuffing nut and steel piston rod, with windmill attachment. No. 3 is Brass, with steel piston rod. Brass covered piston rods furnished on either of above, when so ordered at a small addition to price. Fitted for same size suction and discharge pipe unless otherwise ordered.

No.	Fitted for Suction and Discharge	Stroke, Inches	Price, each
1	1¼, 1½ or 2 inch pipe	10	**6.00**
2	1¼, 1½ " 2 " "	10	**6.00**
3	1¼, 1½ " 2 " "	10	**4.00**

PIPE HOLDERS AND LIFTERS

DIAMOND PIPE HOLDER

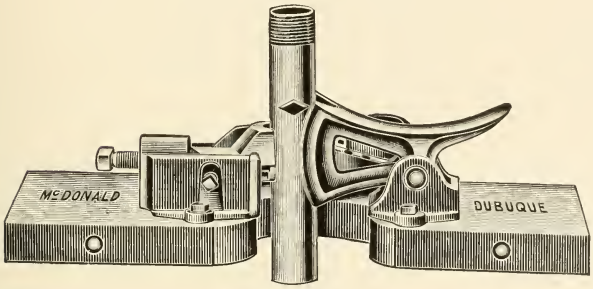


Plate E8871

STANDARD AUTOMATIC PIPE LIFTER AND HOLDERS

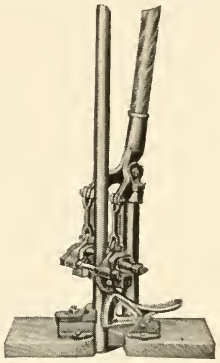


Plate E8872

DIAMOND PIPE HOLDERS

This is a strong and simple pipe holder to be used when taking out or putting in pumps. It is adjustable for 1, 1¼, 1½ or 2-inch pipe, the set screw being screwed in or out to fit required size.

Price ..... each **4.00**

STANDARD AUTOMATIC PIPE LIFTER AND HOLDERS

The illustration above at the right shows the pipe lifter in connection with the Diamond Pipe Holder. It is a successful working device for lifting pipe from and lowering the pipe into wells. It is simple in construction. The lifter is made of malleable iron, mounted on 2-inch plank, 10 inches wide and 2 feet long.

Price, Lifter Only ..... each **12.00**

PIPE LIFTING CLEVIS

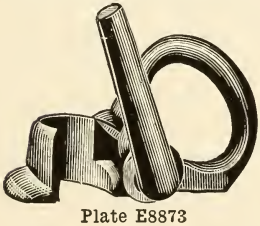


Plate E8873

DIAMOND PIPE DOG

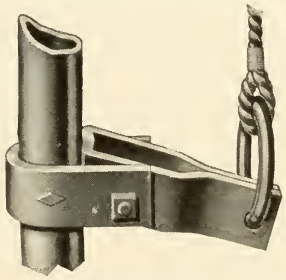


Plate E8874

PIPE LIFTING CLEVIS

This tool is made from cast iron with tool steel bits for engaging the pipe. It is not recommended for deep wells, in fact 75 feet should be the limit. It is a very convenient tool.

Price, for 1 and 1¼-inch Pipe ..... each **2.00**

DIAMOND PIPE DOGS

Very serviceable and handy for pulling pipe out of deep wells, when used with rope and tackle blocks.

Price, for 1¼-inch Pipe ..... each **2.50**
" " 2 " " ..... " **3.50**

WROUGHT PIPE LIFTING AND LOWERING MACHINE

DOUBLE-ACTING FOR 1, 1¼ AND 1½-INCH PIPE

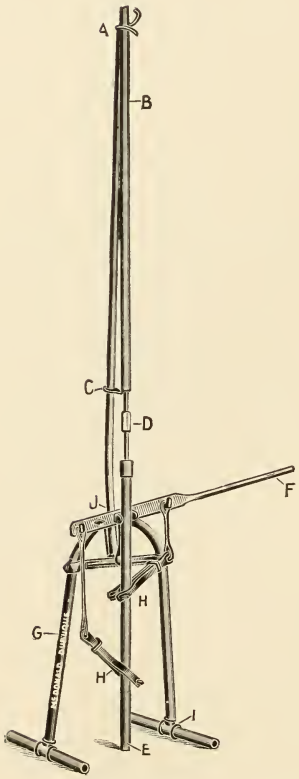


Plate E8881

Accompanying cut represents a valuable device for lifting pipe from wells, and for lowering it into wells.

As shown in cut, the pipe E is held by the grapples HH while the length of pipe B, which has not been coupled, is held by the holders AC while the plunger rod was coupled at D, thus requiring no holding up of pipe B while coupling or uncoupling the rod at D. To raise the pipe, it is only necessary to operate the lever F as you would a pump handle, which raises the pipe rapidly, as fast as 10 feet per minute. To lower the pipe in the well, take hold of the lever F with the right hand, and of lower grapple with the left hand, raise both lever and grapple at the same time, sliding the grapple up the pipe while lever descends until it meets the upper grapple, then reverse the operation and raise the upper grapple while the lower one descends with the pipe. It is so simple that only a little practice makes it easy to operate it rapidly.

To make the grapples hold the various sizes of pipe, screw the hinge in or out as desired. They should be adjusted to slide loose on the pipe. In pulling up a pump, the couplings on the pipe will throw the grapples open as they come up, but as it is only one grapple at a time, the other grapple holds and lifts the pipe till the first one can be put back on the pipe below the coupling.

To put on pump standard, have the top of pipe a little over 2 feet above the platform, use Diamond Pipe Holder on the platform to support the pipe, take away the lifter and screw on the pump.

In taking out a pump, raise the pump 8 or 10 inches above the platform, put on a Diamond Pipe Holder to support the pipe, take off the pump, and put on the lifter.

In carrying Lifter around in a vehicle, the feet and upright guide can be removed. This machine is strong enough so that it will do good work with one man on wells 150 to 200 feet deep.

Price.....each **11.00**

MISCELLANEOUS PUMP REPAIRS

GUIDE BOX

Price.....each .20

Used in top guide of all Windmill Pumps, except Figs. 5, 184 and 185.

SPLIT GUIDE BOX

Price.....each .25

Used in lower part of Cap of Windmill Lift Pumps between 1900 and 1908.

AIR CHAMBER

For Force Pumps, Figs. 21, 22, 23, etc.

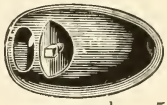
Size.....inches	¾	1
Price.....each	2.00	2.00

GUIDE PLATE

Price.....each .30

Used in lower part of Cap of Old Style Windmill Lift Pumps, prior to 1900.

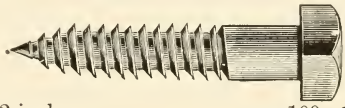
HANDLE BALL



Weight .....pounds	5	8	12
Price.....each	.50	.75	1.00

These are used on handles of deep well pumps to assist in hand operation.

LAG SCREWS



⅜x2 inches.....per 100 2.96

This is the size commonly used to fasten pumps to platform.

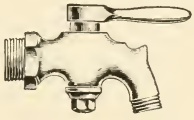
WINDMILL ATTACHMENT

For Connecting 1x1½-inch Flat Slide Rod of Pumps to Wood Pumping Rod of Windmill. Bolts to Wood Rod.

Price.....each .60

IRON BODY COCK SPOUTS FOR PUMPS

LEVER HANDLE SCREWED BRASS PLUG, IRON HANDLE



For 1¼-inch pipe and 1-inch Hose Coupling.

Price.....each 2.50

Used on Figs. 16, 18, 19 and 51 Pumps.

LEVER HANDLE BOLTED BRASS PLUG AND HANDLE

COMPRESSION BOLTED BRASS SCREW, SWIVEL DISC

These bolt to Force Pump Standards like Figs. 16½, 16¾, 116½, 116¾, 316, etc.

Price.....each 2.50

BOLTED PLAIN SPOUTS

REGULAR

SIPHON

Regular.....each	1.50
Siphon..... "	1.75

PARTS OF COMPRESSION COCK SPOUTS

K—Body.....each	1.00
M—Center Piece..... "	.50
Brass Stem..... "	.50
Wheel Handle..... "	.30
⅜x4-inch Steel Stud..... "	.20
⅜-inch Hexagon Nuts, S. F... "	.10
Leather Discs..... "	.10
" Washers..... "	.10
Wrought Iron Washers..... "	.10

BROS SMOKELESS FIRE BOX BOILERS

FOR STEAM AND HOT WATER HEATING

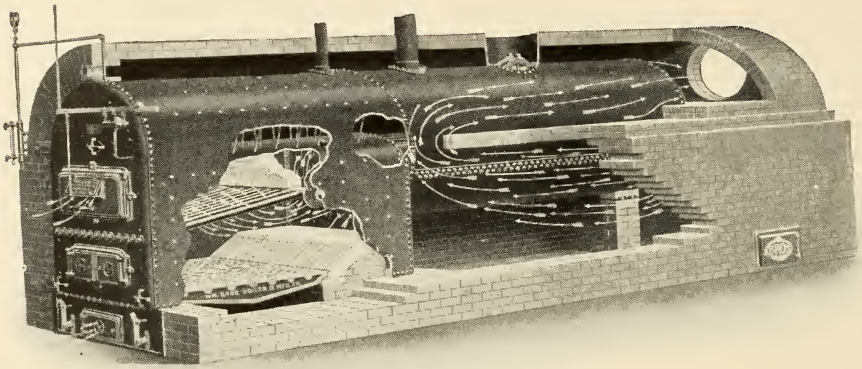


Plate E8901

MEASUREMENTS FOR SETTING WITH SMOKE CONNECTION AT BACK END

Number	104	105	106	107	108	109	110	111	112
Length of Floor Space ..... inches	129	147	165	149	167	185	179	197	215
Width " " " ..... "	66	66	66	72	72	72	78	78	78
Height " Brickwork..... "	78	78	78	85	85	85	93	93	93
" " Water Line ..... "	57	57	57	60	60	60	64	64	64
" " Ash Pit..... "	14	14	14	14	14	14	14	14	14
Width " Return Space .... "	17	17	17	22	22	22	22	22	22
Air Space, Arch ..... "	7	7	7	7	7	7	8	8	8
" " Side ..... "	6	6	6	6	6	6	6	6	6
Thickness of Wall..... "	9	9	9	9	9	9	9	9	9
Length of Ash Pit..... "	29	35	41	35	41	47	41	47	53
Thickness of Bridge Wall ... "	23	23	23	26	26	26	32	32	32
Approx. Number of Brick, Common	2500	2800	2900	3100	3400	3600	4050	4350	4550
" " " " Fire	72	72	72	90	90	90	108	108	108

Number	113	114	115	116	117	118	119	120	....
Length of Floor Space ..... inches	227	257	251	281	257	281	261	285	....
Width " " " ..... "	92	92	98	98	104	104	110	110	....
Height " Brickwork..... "	101	101	113	113	119	119	125	125	....
" " Water Line..... "	64	64	75	75	80	80	87	87	....
" " Ash Pit..... "	14	14	17	17	17	17	17	17	....
Width " Return Space..... "	24	24	24	24	24	24	28	28	....
Air Space, Arch ..... "	8	8	10	10	10	10	10	10	....
" " Side ..... "	6	6	6	6	6	6	6	6	....
Thickness of Wall..... "	13	13	13	13	13	13	13	13	....
Length of Ash Pit ..... "	53	59	59	65	59	65	65	71	....
Thickness of Bridge Wall ... "	32	32	38	38	38	38	38	38	....
Approx. Number of Brick, Common	6500	6700	7400	7900	8200	8600	9100	9600	....
" " " " Fire	150	150	190	190	230	230	300	300	....

In case smoke pipe is placed in front on top omit brick shelf along side of boiler.

BROS SMOKELESS FIRE BOX BOILERS

FOR STEAM OR HOT WATER HEATING—SPECIFICATIONS

Number	104	105	106	107	108	109	110	111	112
Diameter ... inches	36	36	36	42	42	42	48	48	48
Length Over All ... "	103	121	139	118	136	154	148	166	184
Width of Grates ... "	30	30	30	36	36	36	42	42	42
Length " Fire Box ... "	45	51	57	54	60	66	66	72	78
Height " " " ... "	40	40	40	43	43	43	47	47	47
Size of Tubes ... "	3	3	3	3	3	3	3	3	3
Length of Tubes ... "	55	67	79	61	73	85	79	91	103
Number of Tubes ...	29	29	29	38	38	38	48	48	48
Size of Upper Fire Door ... inches	10x20	10x20	10x20	10x20	10x20	10x20	12x24	12x24	12x24
Diameter of Breeching ... "	18	18	20	20	20	22	22	24	24
Size of Steam Supply (One) ... "	4	4	4	6	6	6	6	6	7
" " Return (One) ... "	3	3	3	4	4	4	4	4	5
" " Safety Valve, Lever ... "	2	2	2	2½	2½	2½	2½	2½	3
" " " " Pop ... "	1½	1½	1½	1½	1½	1½	1½	1½	2
No. and Size Water Flow ...	2—5	2—5	2—6	2—6	2—6	2—6	2—6	2—7	2—7
" " " " Return ...	2—5	2—5	2—6	2—6	2—6	2—6	2—6	2—7	2—7
Thickness of Shell ... inches	¼	¼	¼	¼	¼	¼	5/16	5/16	5/16
" " Fire Box and Heads ... "	5/16	5/16	5/16	5/16	5/16	5/16	3/8	3/8	3/8
Depth of Water Leg ... "	15	15	15	15	15	15	15	15	15
Shipping Weight ... pounds	4800	5200	5700	6100	6700	7200	8400	9100	9800
Capacity, Steam ... sq. ft.	1600	1900	2200	2500	2900	3300	3800	4400	5000
" Water ... "	2600	3100	3600	4100	4700	5300	6200	7200	8200
Price, Steam or Water Boiler, Castings and Tools ...	**760.**	**800.**	**850.**	**950.**	**1010.**	**1080.**	**1260.**	**1360.**	**1460.**
" Trimmings for Steam Boiler ...	**34.**	**34.**	**34.**	**40.**	**40.**	**40.**	**40.**	**40.**	**44.**

Number	113	114	115	116	117	118	119	120	....
Diameter ... inches	54	54	60	60	66	66	72	72	....
Length Over All ... "	190	220	214	244	220	244	220	244	....
Width of Grates ... "	48	48	54	54	60	60	66	66	....
Length of Fire Box ... "	78	84	90	96	90	96	96	102	....
Height " " " ... "	47	47	55	55	60	60	67	67	....
Size of Tubes ... "	4	4	4	4	4	4	4	4	....
Length of Tubes ... "	109	133	121	145	127	145	121	139	....
Number of Tubes ...	34	34	54	54	69	69	90	90	....
Size, Upper Fire Door ... inches	14x30	14x30	14x30	14x30	14x30	14x30	14x30	14x30	....
Diameter of Breeching ... "	28	28	32	32	34	34	36	36	....
Size of Steam Supply (One) ... "	7	7	7	7	8	8	8	8	....
" " Return (One) ... "	5	5	5	5	6	6	6	6	....
" " Safety Valve, Lever ... "	3	3	3½	3½	3½	3½	4	4	....
" " " " Pop ... "	2	2	2½	2½	3	3	3	3	....
No. and Size Water Flow ...	2—7	2—7	2—8	2—8	2—10	2—10	2—10	2—10	....
" " " " Return ...	2—7	2—7	2—8	2—8	2—10	2—10	2—10	2—10	....
Thickness of Shell ... inches	5/16	5/16	5/16	5/16	3/8	3/8	3/8	3/8	....
" " Fire Box and Heads ... "	3/8	3/8	7/16	7/16	7/16	7/16	7/16	7/16	....
Depth of Water Leg ... "	15	15	16	16	16	16	16	16	....
Shipping Weight ... pounds	12300	13600	16000	17400	19400	21000	22400	24300	....
Capacity, Steam ... sq. ft.	5800	7000	8200	9500	10500	12000	13000	15000	....
" Water ... "	9500	11400	13400	15500	17000	19600	21000	24500	....
Price, Steam or Water Boiler, Castings and Tools ...	**1770.**	**1970.**	**2330.**	**2560.**	**2930.**	**3180.**	**3540.**	**3800.**	....
" Trimmings for Steam Boiler ...	**48.**	**48.**	**86.**	**86.**	**86.**	**86.**	**90.**	**90.**	....

Specifications as given above are for brick settings, without dome. Manholes in boilers over 30 inches in diameter.

BROS FIRE BOX BOILERS

FOR STEAM AND HOT WATER HEATING

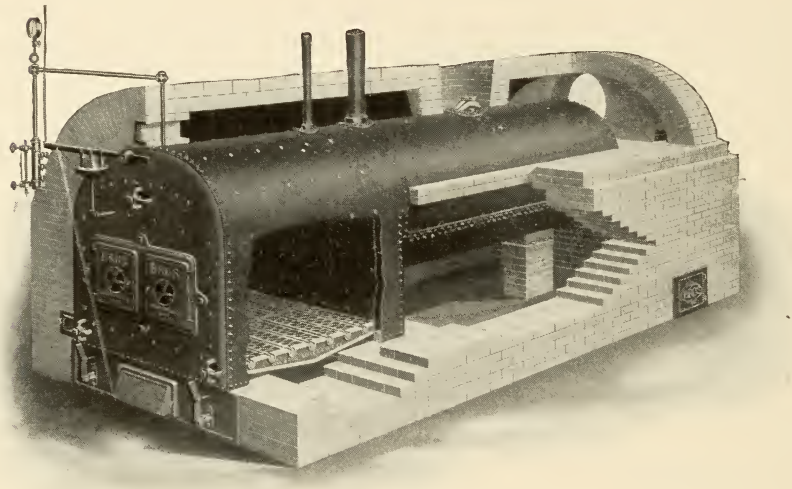


Plate E3921

MEASUREMENTS FOR SETTING WITH SMOKE CONNECTION AT BACK END

Number	00	0	1	2	3	4	5	6	7	8	9
Length of Floor Space..inches	89	113	104	116	128	116	134	152	133	151	169
Width " " " .. "	54	54	60	60	60	66	66	66	72	72	72
Height of Brickwork.. "	66	66	70	70	70	78	78	78	85	85	85
" " Water Line.. "	48	48	52	52	52	57	57	57	60	60	60
" " Ash Pit.... "	14	14	14	14	14	14	14	14	14	14	14
Width of Return Space.. "	14	14	17	17	17	17	17	17	22	22	22
Air Space, Arch.... "	6	6	6	6	6	7	7	7	7	7	7
" " Side..... "	6	6	6	6	6	6	6	6	6	6	6
Thickness of Wall..... "	9	9	9	9	9	9	9	9	9	9	9
Approx. Number of Brick.....	1400	1500	1600	1700	1800	2000	2300	2400	2500	2800	3000

Number	10	11	12	13	14	15	16	17	18	19	20
Length of Floor Space..inches	157	175	193	205	235	223	253	229	253	233	257
Width " " " .. "	78	78	78	92	92	98	98	104	104	110	110
Height of Brickwork.. "	93	93	93	101	101	113	113	119	119	125	125
" " Water Line.. "	64	64	64	64	64	75	75	80	80	87	87
" " Ash Pit..... "	14	14	14	14	14	17	17	17	17	17	17
Width of Return Space.. "	22	22	22	24	24	24	24	24	24	28	28
Air Space, Arch.... "	8	8	8	8	8	10	10	10	10	10	10
" " Side..... "	6	6	6	6	6	6	6	6	6	6	6
Thickness of Wall..... "	9	9	9	13	13	13	13	13	13	13	13
Approx. Number of Brick.....	3200	3500	3700	5500	5700	6000	6500	6700	7100	7500	8000

In case smoke pipe is placed in front on top omit the brick shelf along side of boiler.

BROS FIRE BOX BOILERS

FOR STEAM OR HOT WATER HEATING—SPECIFICATIONS

Number	00	0	1	2	3	4	5	6	7	8	9
Diameter ....inches	24	24	30	30	30	36	36	36	42	42	42
Length Over All.. "	66	90	78	90	102	90	108	126	102	120	138
Width of Fire Box "	19	19	24	24	24	30	30	30	36	36	36
Length " " " "	20	26	26	32	38	32	38	44	38	44	50
Height " " " "	31	31	35	35	35	40	40	40	43	43	43
Diameter of Tubes "	3	3	3	3	3	3	3	3	3	3	3
Length " " "	42	60	48	55	61	55	67	79	61	73	85
Size of Single Fire Door.. "	10x12	10x12	12x18	12x18	12x18	...	...	...	...	...	...
" " Double " " . "	...	...	...	...	...	14x24	14x24	14x24	14x24	14x24	14x24
Diam. of Smoke Pipe ... "	12	12	16	16	16	18	18	18	20	20	20
Size of Steam Supply ... "	2½	2½	3	3	4	4	4	4	6	6	6
" " Return..... "	2	2	2½	2½	3	3	3	3	4	4	4
No. and Size Water Flow. "	1–4	1–4	1–6	1–6	1–6	1–6	1–6	1–6	2–5	2–6	2–6
" " " " Return "	1–4	1–4	1–6	1–6	1–6	1–6	1–6	1–6	2–5	2–6	2–6
Size of Lever Safety Valve "	1¼	1¼	1½	1½	2	2	2	2	2½	2½	2½
Thickness of Shell "	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼
" " Fire Box "	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16
" " Heads. "	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16
Capacity, Steam...square feet	500	700	900	1000	1200	1400	1700	2000	2200	2500	3000
" Water.... "	800	1100	1500	1600	2000	2300	2800	3300	3600	4100	4900
Shipping Weight..pounds	1800	2200	2700	2900	3200	3700	4200	4600	4800	5400	5900
Steam or Water Boiler, Castings and Tools.....	**320.**	**340.**	**380.**	**430.**	**470.**	**490.**	**560.**	**600.**	**660.**	**720.**	**780.**
Trimmings for Same	**22.**	**22.**	**24.**	**24.**	**24.**	**24.**	**24.**	**24.**	**30.**	**30.**	**30.**

Number	10	11	12	13	14	15	16	17	18	19	20
Diameter.....inches	48	48	48	54	54	60	60	66	66	72	72
Length Over All. "	126	144	162	168	198	186	216	192	216	192	216
Width of Fire Box "	42	42	42	48	48	54	54	60	60	66	66
Length " " " "	44	50	56	56	62	62	68	62	68	68	74
Height " " " "	47	47	47	47	47	55	55	60	60	67	67
Diameter of Tubes "	3	3	3	4	4	4	4	4	4	4	4
Length " " "	79	91	103	108	132	120	144	126	144	120	138
Size of Single Fire Door.. "	...	...	...	...	...	18x24	18x24	18x24	18x24	18x24	18x24
" " Double " " . "	18x30	18x30	18x30	18x30	18x30	...	...	...	...	...	...
Diam. of Smoke Pipe ... "	22	22	22	24	24	30	30	34	34	38	38
Size of Steam Supply ... "	6	6	7	7	7	7	7	8	8	8	8
" " Return..... "	4	4	5	5	5	5	5	6	6	6	6
No. and Size Water Flow. "	2–6	2–6	2–7	2–7	2–7	2–7	2–8	2–8	2–10	2–10	2–10
" " " " Return "	2–6	2–6	2–7	2–7	2–7	2–7	2–8	2–8	2–10	2–10	2–10
Size of Lever Safety Valve "	2½	2½	3	3	3	3½	3½	3½	3½	4	4
Thickness of Shell "	5/16	5/16	5/16	5/16	5/16	5/16	5/16	3/8	3/8	3/8	3/8
" " Fire Box "	3/8	3/8	3/8	3/8	3/8	7/16	7/16	7/16	7/16	7/16	7/16
" " Heads. "	3/8	3/8	3/8	3/8	3/8	7/16	7/16	7/16	7/16	7/16	7/16
Capacity, Steam...square feet	3500	4000	4500	5200	6200	7000	8500	9500	10500	11500	13000
" Water... "	5700	6500	7300	8500	10100	11400	14000	15500	17100	18700	21200
Shipping Weight..pounds	6800	7400	8100	10300	11500	14200	15600	17000	18600	19800	21600
Steam or Water Boiler, Castings and Tools.....	**900.**	**980.**	**1050.**	**1300.**	**1460.**	**1770.**	**1920.**	**2190.**	**2400.**	**2750.**	**29.50**
Trimmings for Same	**30.**	**30.**	**34.**	**38.**	**38.**	**74.**	**74.**	**74.**	**74.**	**80.**	**80.**

Specifications as given above are for brick setting, without domes. Manholes in boilers over 30 inches in diameter. No. 15 boilers and larger have two single fire doors, and are made with clinker doors. Openings for coils in fire box, extra.

Boilers for 150 pounds pressure quoted on application.

BROS SMOKELESS DOWN-DRAFT FIREBOX BOILERS

PORTABLE TYPE

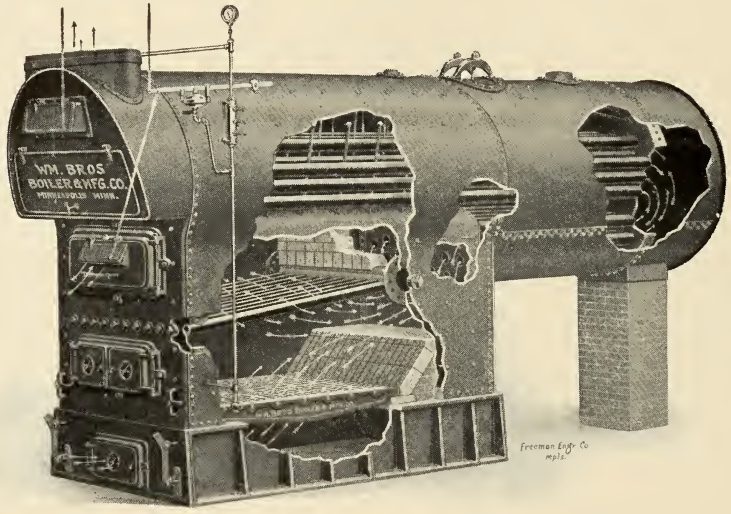


Plate E8941

Number of Boiler	304	305	306	307	308
Capacity Steam.....square feet	1900	2100	2500	3000	3500
" Water..... "	3100	3400	4000	4800	5700
List Price for Steam and Water with Castings and Tools..	**1000.00**	**1050.00**	**1080.00**	**1270.00**	**1340.00**
Extra for Trimmings for Steam Boiler.....	**34.00**	**34.00**	**34.00**	**40.00**	**40.00**
For Longer Shell, each foot or Fraction of a foot.....	**52.00**	**52.00**	**52.00**	**64.00**	**64.00**
Extra for 100 Pounds Working Pressure.....	**100.00**	**110.00**	**110.00**	**130.00**	**134.00**
Number of Boiler.....	309	310	311	312	313
Capacity Steam.....square feet	4000	4500	5000	5500	6000
" Water..... "	6500	7300	8200	9000	9800
List Price for Steam and Water with Castings and Tools..	**1420.00**	**1640.00**	**1710.00**	**1820.00**	**2230.00**
Extra for Trimmings for Steam Boiler.....	**40.00**	**40.00**	**40.00**	**44.00**	**48.00**
For Longer Shell, each foot or Fraction of a foot....	**64.00**	**90.00**	**90.00**	**90.00**	**104.00**
Extra for 100 Pounds Working Pressure.....	**142.00**	**164.00**	**170.00**	**182.00**	**222.00**
Number of Boiler	314	315	316	317	318
Capacity Steam.....square feet	6500	7500	8500	10000	12000
" Water..... "	10500	12200	13800	16300	20000
List Price for Steam and Water with Castings and Tools..	**2430.00**	**2770.00**	**2860.00**	**3260.00**	**3500.00**
Extra for Trimmings for Steam Boiler.....	**48.00**	**86.00**	**86.00**	**86.00**	**86.00**
For Longer Shell, each foot or Fraction of a foot....	**104.00**	**104.00**	**104.00**	**118.00**	**118.00**
Extra for 100 Pounds Working Pressure.....	**244.00**	**278.00**	**286.00**	**326.00**	**350.00**
Number of Boiler.....	319	320	321	322	.....
Capacity Steam.....square feet	14000	16000	18000	20000	.....
" Water..... "	23000	26000	30000	33000	.....
List Price for Steam and Water with Castings and Tools..	**3870.00**	**4140.00**	**4770.00**	**5070.00**	.....
Extra for Trimmings for Steam Boiler.....	**90.00**	**90.00**	**90.00**	**90.00**	.....
For Longer Shell, each foot or Fraction of a foot....	**130.00**	**130.00**	**156.00**	**156.00**	.....
Extra for 100 Pounds Working Pressure.....	**386.00**	**414.00**	**476.00**	**506.00**	.....

For openings in firebox for hot water coil add to list 4.00.

BROS DIRECT DRAFT FIREBOX BOILERS

PORTABLE TYPE

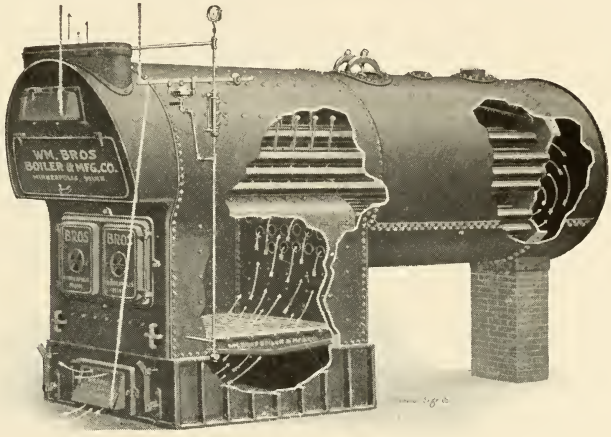


Plate E8951

Number of Boiler	401	402	403	404	405
Capacity Steam..... square feet	900	1100	1300	1500	1800
" Water..... ... "	1500	1800	2100	2500	2900
List Price for Steam or Water with Castings and Tools	**550.00**	**600.00**	**640.00**	**700.00**	**750.00**
Extra for Trimmings for Steam Boiler..	**24.00**	**24.00**	**24.00**	**24.00**	**24.00**
For Longer Shell, each foot or Fraction of a foot....	**42.00**	**42.00**	**42.00**	**52.00**	**52.00**
Extra for 100 pounds Working Pressure.....	**56.00**	**60.00**	**64.00**	**70.00**	**76.00**
Number of Boiler	406	407	408	409	410
Capacity Steam.....square feet	2100	2400	2800	3300	3800
" Water..... "	3400	4000	4600	5400	6200
List Price for Steam or Water with Castings and Tools	**810.00**	**960.00**	**1030.00**	**1100.00**	**1220.00**
Extra for Trimmings for Steam Boiler.	**24.00**	**30.00**	**30.00**	**30.00**	**30.00**
For Longer Shell, each foot or Fraction of a foot....	**52.00**	**64.00**	**64.00**	**64.00**	**90.00**
Extra for 100 pounds Working Pressure	**82.00**	**96.00**	**104.00**	**110.00**	**122.00**
Number of Boiler	411	412	413	414	415
Capacity Steam..... .....square feet	4300	4800	5500	6000	7000
" Water..... "	7000	7800	9000	9800	11400
List Price for Steam or Water with Castings and Tools	**1320.00**	**1400.00**	**1720.00**	**1870.00**	**2150.00**
Extra for Trimmings for Steam Boiler.	**30.00**	**34.00**	**38.00**	**38.00**	**76.00**
For Longer Shell, each foot or Fraction of a foot....	**90.00**	**90.00**	**104.00**	**104.00**	**104.00**
Extra for 100 pounds Working Pressure	**132.00**	**140.00**	**172.00**	**188.00**	**216.00**
Number of Boiler	416	417	418	419	420
Capacity Steam.....square feet	8000	9000	10000	12000	13000
" Water..... "	13000	15000	17000	20000	22000
List Price for Steam or Water with Castings and Tools	**2330.00**	**2700.00**	**2950.00**	**3350.00**	**3600.00**
Extra for Trimmings for Steam Boiler.	**76.00**	**76.00**	**76.00**	**80.00**	**80.00**
For Longer Shell, each foot or Fraction of a foot....	**104.00**	**118.00**	**118.00**	**130.00**	**130.00**
Extra for 100 pounds Working Pressure	**234.00**	**270.00**	**296.00**	**336.00**	**360.00**

For openings in firebox for hot water coil add, to list 4.00.

BERNHARD BOILERS

WATER TUBE AND DOWN-DRAFT SMOKELESS

HIGHEST IN EFFICIENCY, LOWEST IN STATURE

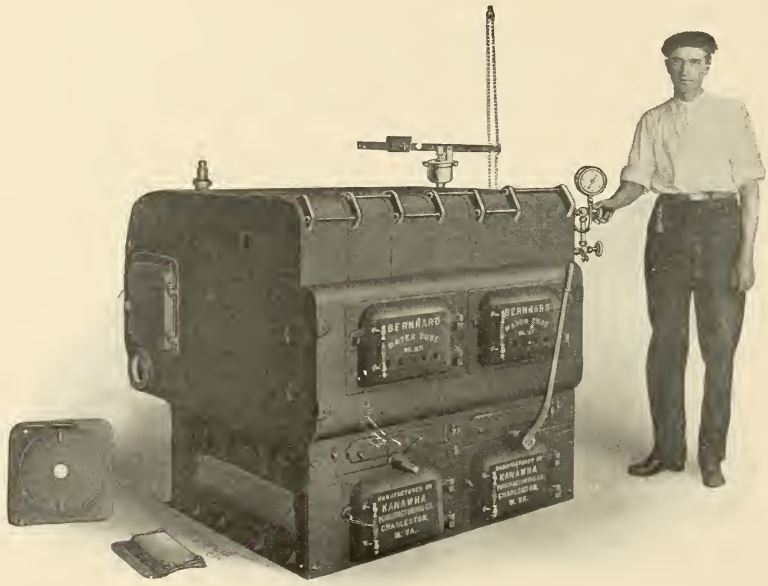


Plate E8961

The above illustration shows a 2000-foot Bernhard Steam Boiler.

The Bernhard Boilers are designed to produce the greatest amount of heat with the least amount of fuel, and can be used for either hard or soft coal, coke, wood, gas, or fuel oil. They can be used successfully on any system of heating where a low pressure boiler can be used, whether steam, hot water, vacuum or vapor, and its steady water line makes it very desirable where the main must be run close to the water line.

In many localities it is impossible, for certain reasons, to have deep basements, so it is necessary to dig a pit in which to set an ordinary boiler. If it is low ground the pit must be waterproofed, which is expensive. A pit is a bad place at best; dirt accumulates, ashes must be lifted, and a person is liable to fall in; but worst of all, in case of high water, the fire is put out the first thing, leaving the building cold, and the fire cannot be started again till the water is out of the pit as well as the basement.

The Bernhard Boiler is so very low that it can be installed in any basement deep enough for a man to stand in, thus making a pit unnecessary.

The Bernhard Water Tube Boiler having perfect circulation, the water in the sections is always perfectly balanced, and as the hottest fire at the crown sheet is covered by only about 3 inches of water, the globules of steam only travel a very short distance before they are released into the large steam dome, and as the liberating surface is much larger than in any other boiler of the same rating, it is impossible for it to prime and throw the water into the mains. This fact means much to the steam fitter, as he can pipe his boiler at a much lower cost than a boiler that requires all flow openings to be connected full size to the main.

BERNHARD SMOKELESS BOILERS

INTERIOR VIEW

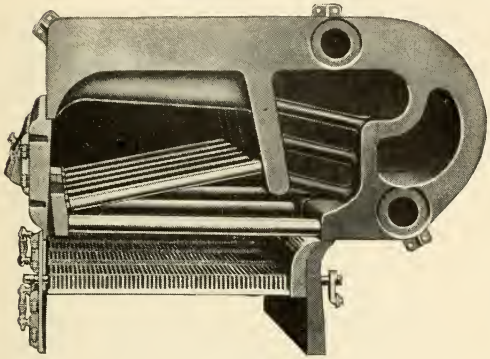


Plate E8971

The Bernhard Smokeless Boiler is so constructed that there is perfect circulation in each section, and through every tube in the water grate.

The water circulates perfectly and, as the hottest fire strikes the crown sheet, which is covered with only about 2 inches of water, the globules of steam only have to travel that distance before being liberated into the large steam dome.

As it is practically 6 feet across the water line, where the liberation takes place, no water can be lifted into the mains, and only dry steam is delivered to the radiators.

SINGLE SERIES

STEAM							WATER		
No.	Rating Sq. Ft. Radiation	Sq. Ft. Water Grate	Free Air Thro. Cu. Ft.	Water Line Inches	Ht. Flow Opening Inches	Price	No.	Rating Sq. Ft. Radiation	Price
540-S	2000	7.	3.65	50	57	**700.00**	540-W	3300	**680.00**
640-S	2500	8.75	4.55	50	57	**800.00**	640-W	4100	**780.00**
740-S	3000	10.50	5.45	50	57	**900.00**	740-W	4900	**880.00**
840-S	3500	12.25	6.35	50	57	**1000.00**	840-W	5700	**980.00**
940-S	4000	14.	7.25	50	57	**1100.00**	940-W	6500	**1080.00**
1040-S	4500	15.75	8.15	50	57	**1200.00**	1040-W	7300	**1180.00**
1140-S	5000	17.50	9.05	50	57	**1300.00**	1140-W	8100	**1280.00**
1240-S	5500	19.25	9.95	50	57	**1400.00**	1240-W	8900	**1380.00**
1340-S	6000	21.	10.85	50	57	**1500.00**	1340-W	9700	**1480.00**
1440-S	6500	22.75	11.75	50	57	**1600.00**	1440-W	10500	**1580.00**
1540-S	7000	24.50	12.65	50	57	**1700.00**	1540-W	11300	**1680.00**
1640-S	7500	26.25	13.55	50	57	**1800.00**	1640-W	12100	**1780.00**

All single boilers have one 18-inch smoke outlet, two 5-inch flow and return openings.

DOUBLE SERIES

1540-S	6500	21.	10.90	50	57	**1700.00**	1540-W	10500	**1660.00**
1640-S	7000	22.75	11.80	50	57	**1800.00**	1640-W	11300	**1760.00**
1740-S	7500	24.50	12.70	50	57	**1900.00**	1740-W	12100	**1860.00**
1840-S	8000	26.25	13.60	50	57	**2000.00**	1840-W	12900	**1960.00**
1940-S	8500	28.	14.50	50	57	**2100.00**	1940-W	13700	**2060.00**
2040-S	9000	29.75	15.40	50	57	**2200.00**	2040-W	14500	**2160.00**
2140-S	9500	31.50	16.30	50	57	**2300.00**	2140-W	15300	**2260.00**
2240-S	10000	33.25	17.20	50	57	**2400.00**	2240-W	16100	**2360.00**
2340-S	10500	35.	18.10	50	57	**2500.00**	2340-W	16900	**2460.00**
2440-S	11000	36.75	19.	50	57	**2600.00**	2440-W	17700	**2560.00**
2540-S	11500	37.50	19.90	50	57	**2700.00**	2540-W	18500	**2660.00**
2640-S	12000	40.25	20.80	50	57	**2800.00**	2640-W	19300	**2760.00**
2740-S	12500	42.	21.70	50	57	**2900.00**	2740-W	20100	**2860.00**
2840-S	13000	43.75	22.60	50	57	**3000.00**	2840-W	20960	**2960.00**
2940-S	13500	45.50	23.50	50	57	**3100.00**	2940-W	21700	**3060.00**
3040-S	14000	47.25	24.40	50	57	**3200.00**	3040-W	22500	**3160.00**
3140-S	14500	49.00	25.30	50	57	**3300.00**	3140-W	23300	**3260.00**
3240-S	15000	50.75	26.20	50	57	**3400.00**	3240-W	24100	**3360.00**
3340-S	15500	52.50	27.10	50	57	**3500.00**	3340-W	25000	**3460.00**

All double boilers have two 18-inch smoke outlets, four 5-inch flow and two 5-inch return openings.

BERNHARD WATER TUBE BOILERS

END SECTION REMOVED

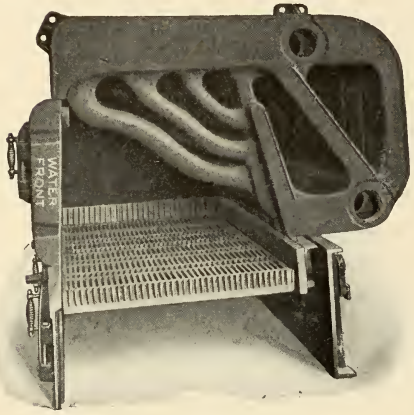


Plate E8981

FRONT SECTION REMOVED

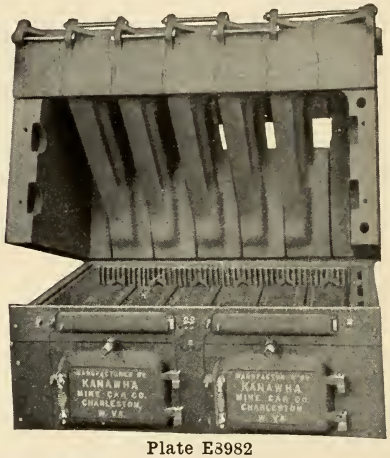


Plate E3982

The smoke hood and cleanout door frames are interchangeable, so the smoke pipe can be attached to either end of the boiler, as desired.

The fire rising from the grade strikes the water tubes at nearly right angles, and then passes through the ports between each section, into the combustion chamber at the rear of the fire box, where it travels to one end of the boiler; it then enters the return flue, passing to the other end of the boiler where it enters the smoke pipe, thus having three different and distinct fire travels.

STEAM							HOT WATER		
No.	Rating Sq. Ft. Radiation	Grate Inches	Grate Area Sq. Ft.	No. of Fire Doors	Flow and Return Two Each Inches	Price Complete	No.	Rating Sq. Ft. Radiation	Price Complete
26-S	750	20x35	4.85	2	4	**320.00**	26-W	1250	**310.00**
27-S	900	20x42	5.82	2	4	**370.00**	27-W	1500	**360.00**
28-S	1050	20x49	6.80	2	4	**420.00**	28-W	1750	**410.00**
35-S	1200	30x28	5.83	1	4	**485.00**	35-W	2000	**475.00**
36-S	1600	30x35	7.29	2	4	**585.00**	36-W	2650	**575.00**
37-S	2000	30x42	8.75	2	4	**685.00**	37-W	3300	**675.00**
38-S	2400	30x49	10.21	2	4	**785.00**	38-W	4000	**775.00**
39-S	2800	30x56	11.67	2	4	**885.00**	39-W	4650	**875.00**
310-S	3300	30x63	13.13	2	4	**985.00**	310-W	5450	**975.00**
311-S	3700	30x70	14.09	3	4	**1085.00**	311-W	5500	**1075.00**
312-S	4100	30x77	16.05	4	4	**1185.00**	312-W	6150	**1175.00**
46-S	2500	40x35	9.72	2	5	**810.00**	46-W	4150	**790.00**
47-S	3200	40x42	11.66	2	5	**960.00**	47-W	5300	**940.00**
48-S	3900	40x49	13.60	2	5	**1110.00**	48-W	6450	**1090.00**
49-S	4600	40x56	15.54	2	5	**1260.00**	49-W	7600	**1240.00**
410-S	5300	40x63	17.48	2	5	**1410.00**	410-W	8700	**1390.00**
411-S	6000	40x70	19.43	3	5	**1560.00**	411-W	9900	**1540.00**
412-S	6700	40x77	21.35	4	5	**1710.00**	412-W	11200	**1690.00**
413-S	7400	40x84	23.32	4	5	**1860.00**	413-W	12300	**1840.00**
414-S	8100	40x91	25.27	4	5	**2010.00**	414-W	13500	**1990.00**
415-S	8800	40x98	27.22	4	5	**2160.00**	415-W	14700	**2040.00**
416-S	9500	40x105	29.17	4	5	**2310.00**	416-W	15900	**2190.00**

Height of water line: 20-in. series, 38 in.; 30-in. series, 43 in.; 40-in. series, 47 in.
Height to flow opening: 20-in. series, 43 in; 30-in. series, 48-in.; 40-in. series, 54 in.
Water heater measurements are the same as steam boilers of same number.

IDEAL SMOKELESS DOWN-DRAFT BOILERS

STEAM

No. 498-S

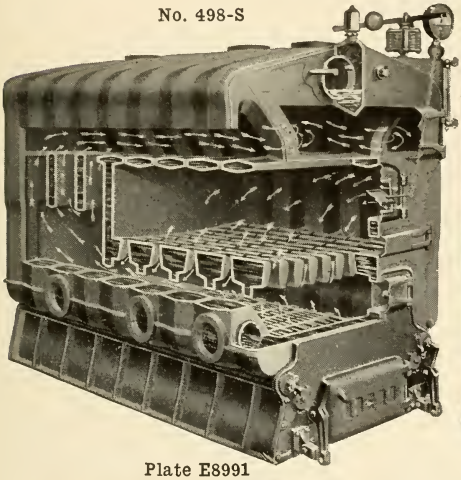


Plate E8991

No. 6120-S

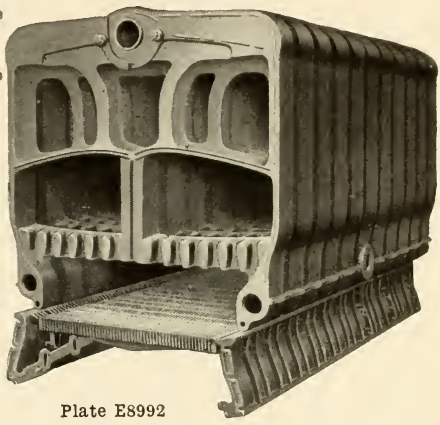


Plate E8992

WATER

No. 394-W

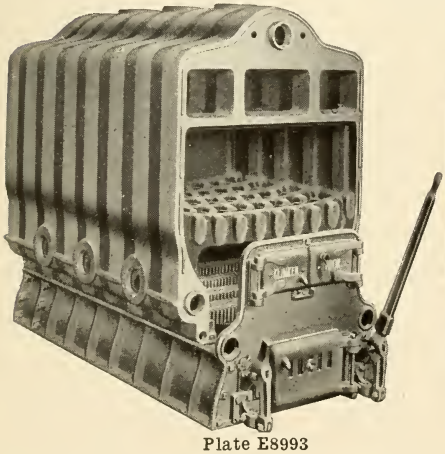


Plate E8993

No. 498-W

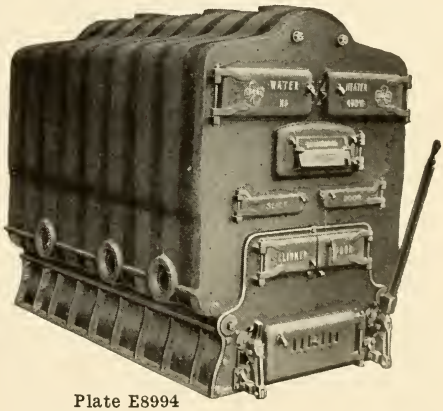


Plate E8994

FUELS.—The ratings of Ideal Down-draft Boilers are based on the use of the grades of soft coal. These boilers will burn any kind of soft coal without generating smoke.

OPERATION.—In starting fire in down-draft boilers, build a strong wood fire on the lower grates. When the wood fire is well under way, a layer of dry wood should be laid on the upper grates, on which should be fed a layer of soft coal, 8 to 12 inches deep. A light layer of kindling wood placed on top of the coal and fired will ignite fuel and the wood underneath it. Do not feed any coal directly onto lower grates, as they are intended to burn only the live coals which drop through the upper grate spaces. If large lump coal is used, it must be broken up before feeding. Do not put on too much coal at one time, but rather feed frequently. Use the slice bar only when more air is needed to burn coal on upper grates. Clean the flues two or three times a week—or daily, if necessary. Care is required on starting a new fire; otherwise there will be some smoke with the first green coal; but if the foregoing instructions are followed, there will be little or no smoke when the fire is started.

IDEAL SMOKELESS DOWN-DRAFT BOILERS

STEAM

Number	Height with Trimmings Inches	Width with Trimmings Inches	Length from Face Front Section to Back of Smoke Hood	Water Grate Area Square Feet	Free Air Area through Grate Sq. Ft.	Water Line Inches	*Outlets Inches	Min. Size Chimney Flues Inches, Feet	Ratings Square Feet	Price Complete
364-S	69	47¼	59½	5.46	2.56	54 7/16	2—4	12x12x40	1500	**550.00**
374-S	69	47¼	67	7.33	3.40	54 7/16	2—4	12x12x50	1800	**640.00**
384-S	69	47¼	75	9.19	4.25	54 7/16	3—4	12x12x50	2100	**730.00**
394-S	69	47¼	83	9.19	4.25	54 7/16	3—4	12x16x60	2400	**820.00**
3104-S	69	47¼	90½	11.07	5.10	54 7/16	3—4	12x16x60	2700	**910.00**
468-S	76¼	60	71	8.8	3.96	60¾	2—5	16x16x50	3000	**944.00**
478-S	76¼	60	80	11.8	5.31	60¾	2—5	16x16x50	3500	**1044.00**
488-S	76¼	60	89	14.8	6.66	60¾	3—5	16x16x60	4000	**1144.00**
498-S	76¼	60	98	14.8	6.66	60¾	3—5	16x16x70	4500	**1244.00**
4108-S	76¼	60	107½	17.8	8.	60¾	3—5	20x20x70	5000	**1344.00**
4118-S	76¼	60	116½	17.8	8.	60¾	3—5	24x24x80	5500	**1444.00**
4128-S	76¼	60	126	20.8	9.35	60¾	3—5	24x24x80	6000	**1544.00**
670-S	95	80	97	17.2	7.8	72	4—6†	24x24x65	6300	**1604.00**
680-S	95	80	108	21.5	9.9	72	4—6†	24x24x75	7200	**1784.00**
690-S	95	80	119	25.8	11.7	72	4—6†	24x28x75	8100	**1964.00**
6100-S	95	80	131	25.8	11.7	72	6—6††	28x28x80	9000	**2144.00**
6110-S	95	80	141½	30.1	13.7	72	6—6††	30x30x85	9900	**2324.00**
6120-S	95	80	153½	30.1	13.7	72	6—6††	30x30x90	10800	**2504.00**

*On sizes from 364-S to 4128-S for each outlet there are two inlets—one on each side of boiler; sizes 670-S to 690-S, inclusive, have four inlets, two being on rear section. Sizes 6100 to 6120, inclusive, have six inlets, two being on rear section.

WATER

Number	Height to Top of Outlet Inches	Width Inches	Length from Face Front Section to Back of Smoke Hood	Water Grate Area Square Feet	Free Air Area through Grate Sq. Ft.	*Inlets Inches	*Outlets Inches	Min. Size Chimney Flues Inches, Feet	Ratings Square Feet	Price Complete
364-W	62¾	40⅜	59½	5.46	2.56	4—4	2—4	12x12x40	2450	**540.00**
374-W	62¾	40⅜	67	7.33	3.40	4—4	2—4	12x12x50	2950	**627.50**
384-W	62¾	40⅜	75	9.19	4.25	6—4	3—4	12x12x50	3450	**715.00**
394-W	62¾	40⅜	83	9.19	4.25	6—4	3—4	12x16x60	3950	**802.50**
3104-W	62¾	40⅜	90½	11.07	5.10	6—4	3—4	12x16x60	4450	**890.00**
468-W	69⅛	53¼	71	8.8	3.96	4—5	2—5	16x16x50	4800	**924.00**
478-W	69⅛	53¼	80	11.8	5.31	4—5	2—5	16x16x50	5600	**1024.00**
488-W	69⅛	53¼	89	14.8	6.66	6—5	3—5	16x16x60	6400	**1124.00**
498-W	69⅛	53¼	98	14.8	6.66	6—5	3—5	16x16x70	7200	**1224.00**
4108-W	69⅛	53¼	107½	17.8	8.	6—5	3—5	20x20x70	8000	**1324.00**
4118-W	69⅛	53¼	116½	17.8	8.	6—5	3—5	24x24x80	8800	**1424.00**
4128-W	69⅛	53¼	126	20.8	9.35	6—5	3—5	24x24x80	9600	**1524.00**
670-W	81¾	69	97	17.2	7.8	4—6	4—6†	24x24x65	10000	**1584.00**
680-W	81¾	69	108	21.5	9.9	4—6	4—6†	24x24x75	11500	**1764.00**
690-W	81¾	69	119	25.8	11.7	4—6	4—6†	24x28x75	13000	**1944.00**
6100-W	81¾	69	131	25.8	11.7	6—6	6—6††	28x28x80	14400	**2124.00**
6110-W	81¾	69	141½	30.1	13.7	6—6	6—6††	30x30x85	15800	**2304.00**
6120-W	81¾	69	153½	30.1	13.7	6—6	6—6††	30x30x90	17300	**2484.00**

*On sizes from 364-W to 4128-W, for each outlet there are two inlets—one on each side of boiler. †Two outlets on right-hand sections; 2 outlets on left-hand sections; outlets located in pairs on right and left halves of same section and are 20⅝ inches center to center. ††Three outlets on right-hand sections; outlets are located in pairs on right and left halves of same section and are 20⅝ inches center to center. Above chimney flue sizes on both steam and water are based on sea level conditions; add 2 per cent to area for each 500 feet elevation above sea level.

IDEAL SECTIONAL BOILERS

STEAM

No. S-36-7

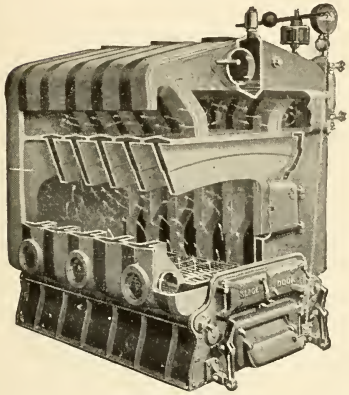


Plate E9011

No. S-48-8

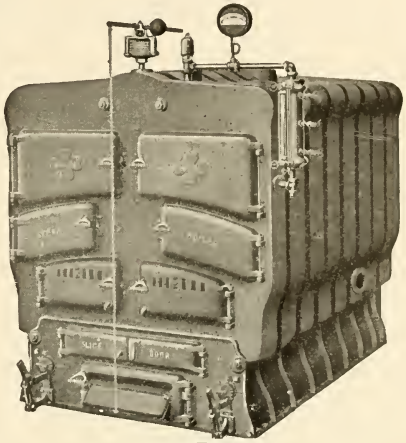


Plate E9012

Number	Sections	Total Length Inches	Total Height Inclusive of Trimmings Inches	Total Width Inclusive of Trimmings Inches	Height Water Line Inches	Grate Area Square Feet	Ash Pit (Inside) Inches	*No. and Size of Outlets Inches	Smoke Pipe Inches	8-Hour Ratings Square Feet	Price Complete Each
S-15- 4	4	40 7/8	53 1/2	34 1/2	40 7/8	1.95	20 5/16 x 21 5/8	2—3	8	300	157.00
S-15- 5	5	47 1/8	53 1/2	34 1/2	40 7/8	2.60	20 5/16 x 27 13/16	2—3	8	425	210.00
S-15- 6	6	53 3/8	53 1/2	34 1/2	40 7/8	3.25	20 5/16 x 34	2—3	8	550	245.00
S-19- 5	5	51 3/4	55 3/4	38	43 3/8	3.32	20 x 29 5/16	2—3	9	600	259.00
S-19- 6	6	58 3/8	55 3/4	38	43 3/8	4.15	20 x 36 5/8	2—3	9	750	325.00
S-19- 7	7	65	55 3/4	38	43 3/8	4.98	20 x 43 5/16	3—3	9	900	370.00
S-22- 5	5	53 1/4	59 1/2	42	46 1/4	4.08	23 1/8 x 31 13/16	2—4	10	800	340.00
S-22- 6	6	60 1/4	59 1/2	42	46 1/4	5.10	23 1/8 x 38 7/8	2—4	10	1000	400.00
S-22- 7	7	67 1/4	59 1/2	42	46 1/4	6.12	23 1/8 x 45 15/16	3—4	10	1200	460.00
S-25- 5	5	59 1/4	64 1/8	47 1/4	51	5.44	28 x 35 3/16	2—4	11	1100	430.00
S-25- 6	6	66 7/8	64 1/8	47 1/4	51	6.80	28 x 42 7/8	2—4	11	1350	505.00
S-25- 7	7	74 1/2	64 1/8	47 1/4	51	8.16	28 x 50 9/16	3—4	11	1600	580.00
S-25- 8	8	82 1/4	64 1/8	47 1/4	51	9.52	28 x 58 1/4	3—4	11	1850	655.00
S-28- 5	5	60	67 1/16	50 1/2	53 3/8	6.24	30 5/8 x 35 1/2	2—4	12	1500	490.00
S-28- 6	6	68	67 1/16	50 1/2	53 3/8	7.80	30 5/8 x 43 1/2	2—4	12	1625	587.00
S-28- 7	7	76	67 1/16	50 1/2	53 3/8	9.36	30 5/8 x 51 1/2	3—4	12	1950	684.00
S-28- 8	8	84	67 1/16	50 1/2	53 3/8	10.92	30 5/8 x 59 1/2	3—4	12	2275	781.00
S-36- 5	5	69 3/4	76 1/4	60	60 3/4	9.12	38 15/16 x 40 3/4	2—5	15	2100	730.00
S-36- 6	6	78 7/8	76 1/4	60	60 3/4	11.40	38 15/16 x 49 7/8	2—5	15	2625	845.00
S-36- 7	7	88	76 1/4	60	60 3/4	13.68	38 15/16 x 59	3—5	15	3150	960.00
S-36- 8	8	97 1/8	76 1/4	60	60 3/4	15.96	38 15/16 x 68 1/8	3—5	15	3675	1075.00
S-36- 9	9	106 1/4	76 1/4	60	60 3/4	18.24	38 15/16 x 77 1/4	4—5	15	4200	1190.00
S-48- 6	6	92	97	80	72	18.00	52 x 54 1/2	2—6	21	5275†	1395.00
S-48- 7	7	102 3/4	97	80	72	21.60	52 x 65 1/4	2—6	21	6300†	1600.00
S-48- 8	8	113 1/2	97	80	72	25.20	52 x 76	3—6	21	7325†	1805.00
S-48- 9	9	124 1/4	97	80	72	28.80	52 x 86 3/4	3—6	21	8350†	2010.00
S-48-10	10	135	97	80	72	32.40	52 x 97 1/2	3—6	21	9375†	2215.00

*For each outlet there are two inlets of same size, one on each side.
Above are hard coal ratings. Soft coal requires boiler size larger.
Prices on boiler parts quoted on application. †Not on 8-hour basis.

IDEAL SECTIONAL BOILERS

WATER

No. W-15-6

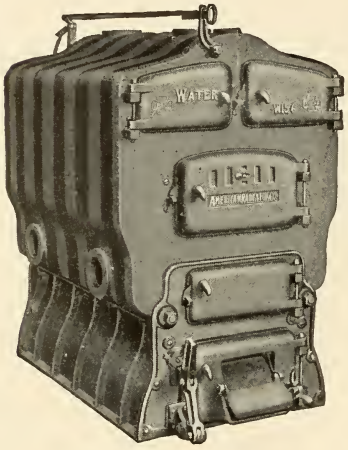


Plate E9021

No. W-25-7

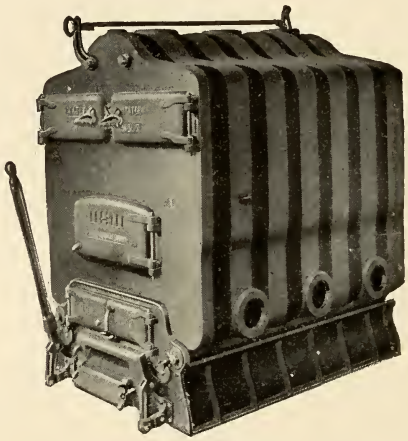


Plate E9022

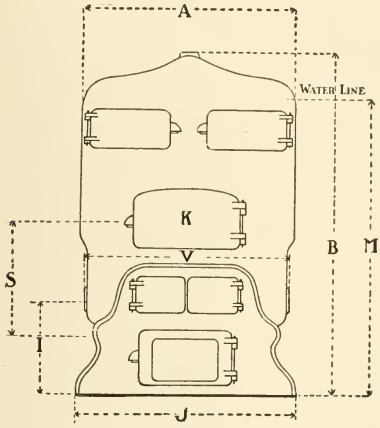
Number	Sections	Total Length Inches	Total Height Inches	Total Width Inches	Grate Area Square Feet	Ash Pit (Inside) Inches	*No. and Size of Outlets Inches	Smoke Pipe Inches	8-Hour Ratings Square Feet	Price Complete Each
W-15-4	4	40 7/8	42 7/16	27 1/2	1.95	20 5/16 x 21 5/8	2-3	8	500	147.00
W-15-5	5	47 1/8	42 7/16	27 1/2	2.60	20 5/16 x 27 13/16	2-3	8	700	200.00
W-15-6	6	53 3/8	42 7/16	27 1/2	3.25	20 5/16 x 34	2-3	8	900	235.00
W-19-5	5	51 3/4	50	31 1/4	3.32	20 x 29 5/16	2-3	9	1000	249.00
W-19-6	6	58 3/8	50	31 1/4	4.15	20 x 36 5/8	2-3	9	1250	315.00
W-19-7	7	65	50	31 1/4	4.98	20 x 43 5/16	3-3	9	1500	360.00
W-22-5	5	53 1/4	53	35 1/4	4.08	23 1/8 x 31 13/16	2-4	10	1300	330.00
W-22-6	6	60 1/4	53	35 1/4	5.10	23 1/8 x 38 7/8	2-4	10	1650	390.00
W-22-7	7	67 1/4	53	35 1/4	6.12	23 1/8 x 45 15/16	3-4	10	2000	450.00
W-25-5	5	59 1/4	57 7/8	40 3/8	5.44	28 x 35 3/16	2-4	11	1825	420.00
W-25-6	6	66 7/8	57 7/8	40 3/8	6.80	28 x 42 7/8	2-4	11	2225	495.00
W-25-7	7	74 1/2	57 7/8	40 3/8	8.16	28 x 50 9/16	3-4	11	2650	570.00
W-25-8	8	82 1/4	57 7/8	40 3/8	9.52	28 x 58 1/4	3-4	11	3050	645.00
W-28-5	5	60	60 5/8	43 1/2	6.24	30 5/8 x 35 1/2	2-4	12	2150	480.00
W-28-6	6	68	60 5/8	43 1/2	7.80	30 5/8 x 43 1/2	2-4	12	2675	577.00
W-28-7	7	76	60 5/8	43 1/2	9.36	30 5/8 x 51 1/2	3-4	12	3200	674.00
W-28-8	8	84	60 5/8	43 1/2	10.92	38 5/8 x 59 1/2	3-4	12	3725	761.00
W-36-5	5	69 3/4	69 1/8	53 1/4	9.12	38 15/16 x 40 3/4	2-5	15	3450	710.00
W-36-6	6	78 7/8	69 1/8	53 1/4	11.40	38 15/16 x 49 7/8	2-5	15	4325	825.00
W-36-7	7	88	69 1/8	53 1/4	13.68	38 15/16 x 59	3-5	15	5200	940.00
W-36-8	8	97 1/8	69 1/8	53 1/4	15.96	38 15/16 x 68 1/8	3-5	15	6050	1055.00
W-36-9	9	106 1/4	69 1/8	53 1/4	18.24	38 15/16 x 77 1/4	4-5	15	6925	1170.00
W-48-6	6	92	81 3/4	68	18.00	52 x 54 1/2	2-6	21	8700†	1375.00
W-48-7	7	102 3/4	81 3/4	68	21.60	52 x 65 1/4	2-6	21	10375†	1580.00
W-48-8	8	113 1/2	81 3/4	68	25.20	52 x 76	3-6	21	12050†	1785.00
W-48-9	9	124 1/4	81 3/4	68	28.80	52 x 86 3/4	3-6	21	13725†	1990.00
W-48-10	10	135	81 3/4	68	32.40	52 x 97 1/2	3-6	21	15400†	2195.00

Above are hard coal ratings — soft coal requires boiler size larger.
Prices on boiler parts quoted on application. †Not on 8-hour basis.
*For each outlet there are two inlets same size, one on each side.

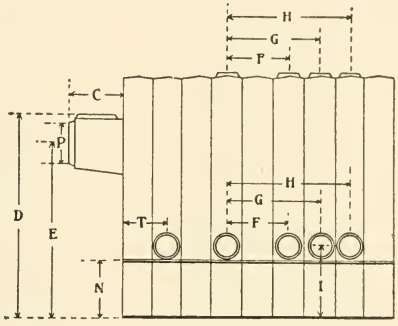
IDEAL SECTIONAL BOILERS

STEAM AND WATER—DETAIL MEASUREMENTS

FRONT VIEW



SECTIONAL VIEW



DISTANCES IN INCHES BETWEEN POINTS SHOWN

Measurements	Size of Boiler, Inches													
	15		19		22		25		28		36		48	
	Water	Steam	Water	Steam	Water	Steam	Water	Steam	Water	Steam	Water	Steam	Water	Steam
A	27 1/2	28 1/2	31 1/4	32 1/4	35 1/4	36 1/4	40 3/8	41 3/8	43 1/2	44 1/2	53 1/4	54 1/4	68	69
B	42 7/16	46 3/16	50	50	53	53	57 7/8	57 7/8	60 5/8	60 5/8	69 1/8	69 1/8	81 3/4	81 3/4
†C	13 5/16	13 5/16	15 5/8	15 5/8	15 1/4	15 1/4	17 1/2	17 1/2	18 1/8	18 1/8	21 11/16	21 11/16	27 1/4	27 1/4
‡D	41 1/8	41 1/8	45 1/8	45 1/8	47 3/4	47 3/4	53	53	55 7/8	55 7/8	63 3/8	63 3/8	73 1/8	73 1/8
E	34 3/4	34 3/4	37 3/4	37 3/4	40 1/2	40 1/2	44 1/8	44 1/8	46 1/4	46 1/4	52 9/16	52 9/16	59 1/2	59 1/2
F	12 1/2	12 1/2	13 1/4	13 1/4	14 1/8	14 1/8	15 3/8	15 3/8	16	16	18 1/4	18 1/4	21 1/2	21 1/2
G	18 3/4	18 3/4	19 7/8	19 7/8	21 1/4	21 1/4	23 1/16	23 1/16	24	24	27 3/8	27 3/8	32 1/4	32 1/4
H	25	25	26 1/2	26 1/2	28 1/4	28 1/4	30 3/4	30 3/4	32	32	36 1/2	36 1/2	43	43
I	16 3/16	16 3/16	16	16	16 3/4	16 3/4	17 3/4	17 3/4	17 7/8	17 7/8	18 7/16	18 7/16	22 3/8	22 3/8
J	23 3/4	23 3/4	26	26	29 1/8	29 1/8	34 1/2	34 1/2	37 1/8	37 1/8	45 7/16	45 7/16	58 3/8	58 3/8
K	8x14	8x14	*8x14	*8x14	*8x14	*8x14	*9x18	*9x18	*9x18	*9x18	10x20	10x20	11x19	11x19
M	....	40 7/8	....	43 3/8	....	46 1/4	....	51	....	53 3/8	....	60 3/4	....	72
N	11 3/4	11 3/4	9 3/8	9 3/8	9 1/2	9 1/2	9 7/8	9 7/8	10	10	10 13/16	10 13/16	14 11/16	14 11/16
P	8	8	9	9	10	10	11	11	12	12	15	15	21	21
S	13 1/4	13 1/4	12 5/8	12 5/8	12 3/8	12 3/8	14 1/4	14 1/4	14 1/4	14 1/4	15 5/8	15 5/8	17 3/4	17 3/4
T	7 1/2	7 1/2	8	8	8 1/2	8 1/2	9 1/8	9 1/8	9 1/2	9 1/2	10 7/8	10 7/8	12 3/4	....
V	25 13/32	25 13/32	29 5/8	29 5/8	33 9/16	33 9/16	39 3/8	39 3/8	41 13/16	41 13/16	52 5/8	52 5/8	64 11/16	64 11/16

*For wood, feed door K in 19-inch boilers is 10 1/4 x18 inches; in 22 and 25-inch is 11 1/4 x18 inches; in 28-inch is 12 13/16 x19 7/8 inches; in 36-inch is 13 15/16 x24 inches. †Measured without smoke hood cover on. ‡Measured with smoke hood cover.

Do not bush the flow pipe outlets of steam boilers; connect all of them full size to the main.

For each supply outlet on top of boiler there is a corresponding return inlet in either side, except 48-inch steam are furnished with four 4-inch, and 48-inch water with four 6-inch return tappings, two on face of back section, and one on each side of boiler in third section from rear. Back openings should be yoked together so that both halves of boiler may be drained equally. Extra tappings provided if desired.

IDEAL ROUND BOILERS

ARCO

STEAM

No. 5-19-S

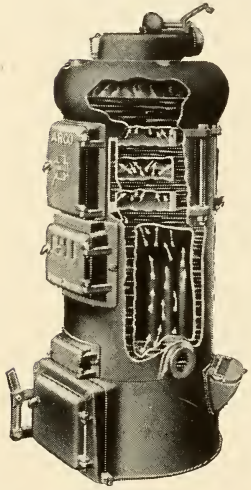


Plate E9041

No. 5-22-S

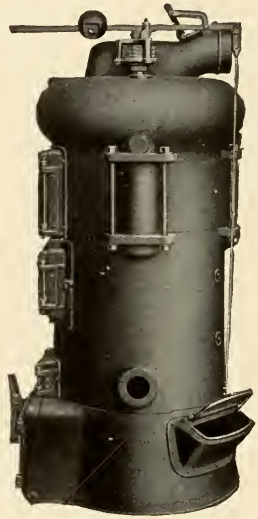


Plate E9042

No. 4-34-S

Plate E9043

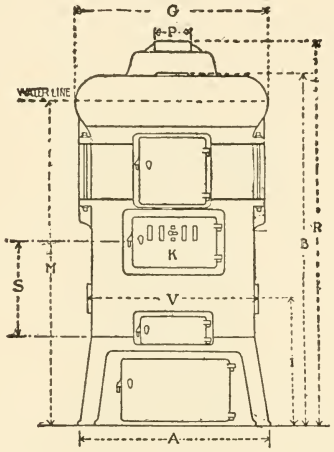
Number and Size	Height (to Top Outlet) Inches	Diam. at Base Inches	Grate Area Sq. Ft.	Nom. Diam. of Grate Inches	Height of Water Line Inches	Outlets Number and Size	Inlets Number and Size	Smoke Pipe Inches	8-Hour Ratings Sq. Ft.	Price Complete Each
4-19-S	52½	27	1.76	19	45½	1—2½	2—2½	8	300	149.50
5-19-S	57	27	1.76	19	50	1—2½	2—2½	8	350	167.00
6-19-S	61⅝	27	1.76	19	54⅝	1—2½	2—2½	8	400	193.00
4-20-S	51½	28 13/16	2.23	20	46⅛	1—3	2—3	8	375	180.00
5-20-S	56⅛	28 13/16	2.23	20	50¾	1—3	2—3	8	425	199.50
6-20-S	60⅝	28 13/16	2.23	20	55¼	1—3	2—3	8	475	213.00
4-22-S	54	30⅛	2.40	22	47	1—3	2—3	9	450	206.50
5-22-S	58½	30⅛	2.40	22	51½	1—3	2—3	9	525	226.00
6-22-S	63¼	30⅛	2.40	22	56¼	1—3	2—3	9	575	240.00
4-23-S	52¾	31½	2.91	23	46⅝	1—3	2—3	9	500	219.50
5-23-S	57½	31½	2.91	23	51⅜	1—3	2—3	9	575	240.00
6-23-S	62¼	31½	2.91	23	56⅛	1—3	2—3	9	650	287.50
4-25-S	55⅝	33⅛	3.14	25	47⅞	1—3½	2—3½	9	550	233.00
5-25-S	60¼	33⅛	3.14	25	52½	1—3½	2—3½	9	625	277.50
6-25-S	65⅜	33⅛	3.14	25	57⅝	1—3½	2—3½	9	700	300.00
4-28-S	57⅝	36¾	4.12	28	49¼	1—4	2—4	10	800	331.00
5-28-S	62⅝	36¾	4.12	28	54¼	1—4	2—4	10	900	360.50
6-28-S	67⅞	36¾	4.12	28	59½	1—4	2—4	10	1000	389.50
4-31-S	59¾	39⅛	4.90	31	51	1—4	2—4	10	1100	419.00
5-31-S	65	39⅛	4.90	31	56¼	1—4	2—4	10	1275	470.00
6-31-S	70⅜	39⅛	4.90	31	61⅝	1—4	2—4	10	1400	500.00
4-34-S	61½	42	5.94	34	52	1—5	2—5	11	1300	477.00
5-34-S	67	42	5.94	34	57½	1—5	2—5	11	1500	530.00
6-34-S	72⅝	42	5.94	34	63⅛	1—5	2—5	11	1650	575.00

The above ratings are based on the use of hard coal and for direct radiation.

IDEAL ROUND BOILERS

"ARCO"

STEAM



DISTANCE IN INCHES BETWEEN POINTS SHOWN

No. of Boiler	G	B	I	K	M	P	R	S	V
4-19-S	26 5/8	52 1/2	14 3/4	8 1/2 x 11 3/4	45 1/2	8	59 5/8	15 7/8	24 1/8
5-19-S	26 5/8	57	14 3/4	8 1/2 x 11 3/4	50	8	64 1/8	15 7/8	24 1/8
6-19-S	26 5/8	61 5/8	14 3/4	8 1/2 x 11 3/4	54 5/8	8	68 3/4	15 7/8	24 1/8
4-20-S	28	51 1/2	16	11 1/16 x 7 27/32	46 1/8	8	58 1/4	16	25 1/2
5-20-S	28	56 1/8	16	11 1/16 x 7 27/32	50 3/4	8	62 7/8	16	25 1/2
6-20-S	28	60 11/16	16	11 1/16 x 7 27/32	55 5/16	8	67 7/16	16	25 1/2
4-22-S	30 1/4	54	15 3/4	9 x 13 1/4	47	9	62 1/4	16 3/4	27 17/32
5-22-S	30 1/4	58 1/2	15 3/4	9 x 13 1/4	51 1/2	9	66 3/4	16 3/4	27 17/32
6-22-S	30 1/4	63 1/4	15 3/4	9 x 13 1/4	56 1/4	9	71 1/2	16 3/4	27 17/32
4-23-S	31	52 51/64	16 1/8	8 7/16 x 12 5/8	46 5/8	9	60 5/8	16	28 1/4
5-23-S	31	57 35/64	16 1/8	8 7/16 x 12 5/8	51 3/8	9	65 3/8	16	28 1/4
6-23-S	31	62 17/64	16 1/8	8 7/16 x 12 5/8	56 3/32	9	70 3/32	16	28 1/4
4-25-S	32 15/16	55 5/8	16 1/4	9 x 13 1/4	47 7/8	9	63 3/8	17 1/2	30 1/8
5-25-S	32 15/16	60 1/4	16 1/4	9 x 13 1/4	52 1/2	9	68	17 1/2	30 1/8
6-25-S	32 15/16	65 3/8	16 1/4	9 x 13 1/4	57 5/8	9	73 1/8	17 1/2	30 1/8
4-28-S	36 15/16	57 5/8	16 3/8	9 5/8 x 18	49 1/4	10	66 5/8	18 5/8	34 1/16
5-28-S	36 15/16	62 5/8	16 3/8	9 5/8 x 18	54 1/4	10	71 5/8	18 5/8	34 1/16
6-28-S	36 15/16	67 5/8	16 3/8	9 5/8 x 18	59 1/2	10	76 7/8	18 5/8	34 1/16
4-31-S	40 3/8	59 3/4	16 1/4	9 5/8 x 18	51	10	68 5/8	19 5/16	36 7/8
5-31-S	40 3/8	65	16 1/4	9 5/8 x 18	56 1/4	10	73 7/8	19 5/16	36 7/8
6-31-S	*40 3/8	70 3/8	16 1/4	9 5/8 x 18	61 5/8	10	79 1/4	19 5/16	36 7/8
4-34-S	45 3/16	61 1/2	17	9 5/8 x 18	52	11	71 1/4	19 13/16	39 27/32
5-34-S	45 3/16	67	17	9 5/8 x 18	57 1/2	11	76 3/4	19 13/16	39 27/32
6-34-S	45 3/16	72 5/8	17	9 5/8 x 18	63 1/8	11	82 3/8	19 13/16	39 27/32

IDEAL ROUND BOILERS

ARCO

WATER

No. 5-22-W

Plate E9061

No. 4-23-W

Plate E9062

No. 4-31-W

Plate E9063

Number and Size	Height (to Top Outlet) Inches	Diam. at Base Inches	Grate Area Sq. Ft.	Nom. Diam. Grate Inches	Outlets Number and Size	Inlets Number and Size	Smoke Pipe Inches	8-hour Ratings Sq. Ft.	Price Complete Each
4-19-W	45 7/8	27	1.76	19	2—2 1/2	2—2 1/2	8	500	140.50
5-19-W	59 3/8	27	1.76	19	2—2 1/2	2—2 1/2	8	575	158.00
6-19-W	55	27	1.76	19	2—2 1/2	2—2 1/2	8	650	184.50
4-20-W	45 1/2	28 13/16	2.23	20	2—3	2—3	8	625	171.00
5-20-W	50 1/8	28 13/16	2.23	20	2—3	2—3	8	700	191.00
6-20-W	54 3/4	28 13/16	2.23	20	2—3	2—3	8	775	204.00
4-22-W	47 5/8	30 1/8	2.40	22	2—3	2—3	9	750	197.00
5-22-W	52	30 1/8	2.40	22	2—3	2—3	9	875	217.50
6-22-W	56 7/8	30 1/8	2.40	22	2—3	2—3	9	950	230.00
4-23-W	46 3/8	31 1/2	2.91	23	2—3	2—3	9	825	210.50
5-23-W	51 1/8	31 1/2	2.91	23	2—3	2—3	9	950	230.00
6-23-W	55 7/8	31 1/2	2.91	23	2—3	2—3	9	1075	277.50
4-25-W	48 3/4	33 1/8	3.14	25	2—3 1/2	2—3 1/2	9	900	224.00
5-25-W	53 1/2	33 1/8	3.14	25	2—3 1/2	2—3 1/2	9	1025	270.00
6-25-W	58 5/8	33 1/8	3.14	25	2—3 1/2	2—3 1/2	9	1150	290.00
4-28-W	50 3/4	36 3/4	4.12	28	2—4	2—4	10	1325	321.50
5-28-W	55 3/4	36 3/4	4.12	28	2—4	2—4	10	1500	350.50
6-28-W	60 7/8	36 3/4	4.12	28	2—4	2—4	10	1650	380.00
4-31-W	53 1/8	39 1/8	4.90	31	2—4	2—4	10	1825	409.00
5-31-W	58 1/4	39 1/8	4.90	31	2—4	2—4	10	2100	457.50
6-31-W	63 3/4	39 1/8	4.90	31	2—4	2—4	10	2325	495.00
4-34-W	54 1/4	42	5.94	34	2—5	2—5	11	2150	467.50
5-34-W	59 5/8	42	5.94	34	2—5	2—5	11	2475	525.00
6-34-W	65 1/4	42	5.94	34	2—5	2—5	11	2725	565.00

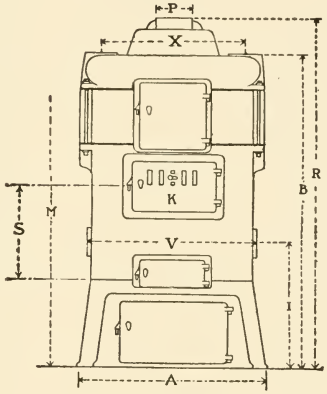
The above ratings are based on the use of hard coal and for direct radiation.

The ratings provide that all piping (mains and risers, flow and return) in addition to the direct radiation to be used, shall be figured as radiating surface in estimating the size of boiler required. In rating water boilers it is understood that the temperature of the water leaving the boiler will be 180° Fahr.

IDEAL ROUND BOILERS

"ARCO"

WATER



DISTANCE IN INCHES BETWEEN POINTS SHOWN

No. of Boiler	A	B	I	K	P	R	S	V	X
4-19-W	27	45 7/8	14 3/4	8 1/2x11 3/4	8	52 5/8	15 7/8	24 1/8	19 1/4
5-19-W	27	50 3/8	14 3/4	8 1/2x11 3/4	8	57 1/8	15 7/8	24 1/8	19 1/4
6-19-W	27	55	14 3/4	8 1/2x11 3/4	8	61 3/4	15 7/8	24 1/8	19 1/4
4-20-W	28 3/16	45 17/32	16	11 1/16x 7 27/32	8	51 31/32	16	25 1/2	20 9/16
5-20-W	28 3/16	50 5/32	16	11 1/16x 7 27/32	8	56 19/32	16	25 1/2	20 9/16
6-20-W	28 3/16	54 23/32	16	11 1/16x 7 27/32	8	61 5/32	16	25 1/2	20 9/16
4-22-W	30 1/8	47 5/8	15 3/4	9 x13 1/4	9	55 5/8	16 3/4	27 17/32	23
5-22-W	30 1/8	52	15 3/4	9 x13 1/4	9	60	16 3/4	27 17/32	23
6-22-W	30 1/8	56 7/8	15 3/4	9 x13 1/4	9	64 7/8	16 3/4	27 17/32	23
4-23-W	31 1/2	46 27/64	16 1/8	8 7/16x12 5/8	9	54 1/8	16	28 1/4	23 29/32
5-23-W	31 1/2	51 11/64	16 1/8	8 7/16x12 5/8	9	58 7/8	16	28 1/4	23 29/32
6-23-W	31 1/2	55 57/64	16 1/8	8 7/16x12 5/8	9	63 19/32	16	28 1/4	23 29/32
4-25-W	33 1/8	48 3/4	16 1/4	9 x13 1/4	9	56 1/4	17 1/2	30 1/8	25 1/2
5-25-W	33 1/8	53 1/2	16 1/4	9 x13 1/4	9	61	17 1/2	30 1/8	25 1/2
6-25-W	33 1/8	58 5/8	16 1/4	9 x13 1/4	9	66 1/8	17 1/2	30 1/8	25 1/2
4-28-W	36 3/4	50 3/4	16 3/8	9 5/8x18	10	59 1/2	18 5/8	34 1/16	29 3/8
5-28-W	36 3/4	55 3/4	16 3/8	9 5/8x18	10	64 1/2	18 5/8	34 1/16	29 3/8
6-28-W	36 3/4	60 7/8	16 3/8	9 5/8x18	10	69 5/8	18 5/8	34 1/16	29 3/8
4-31-W	39 1/8	53 1/8	16 1/4	9 5/8x18	10	61 5/8	19 5/16	36 7/8	32 1/4
5-31-W	39 1/8	58 1/4	16 1/4	9 5/8x18	10	66 3/4	19 5/16	36 7/8	32 1/4
6-31-W	39 1/8	63 3/4	16 1/4	9 5/8x18	10	72 1/4	19 5/16	36 7/8	32 1/4
4-34-W	42	54 1/4	17	9 5/8x18	11	63 5/8	19 13/16	39 27/32	37
5-34-W	42	59 5/8	17	9 5/8x18	11	69	19 13/16	39 27/32	37
6-34-W	42	65 1/4	17	9 5/8x18	11	74 5/8	19 13/16	39 27/32	37

AUXILIARY WATER HEATERS

GLOBE

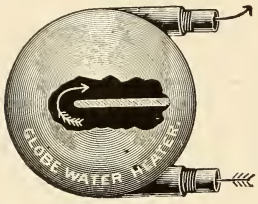


Plate E9081

LITTLE GIANT

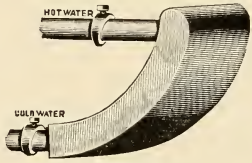


Plate E9082

GLOBE

Number	60	70	80	90
Diameter ..... inches	6	7	8	9
Capacity per Hour ..... gallons	20 to 30	30 to 40	40 to 50	50 to 60
Distance, Center to Center of Flow and Return .... inches	3¾	4¾	5¾	6¾
Price ..... each	**4.00**	**5.00**	**6.00**	**7.00**

All sizes tapped for 1-inch pipe.

LITTLE GIANT

Number	0	1	2	3
Capacity, Direct Radiation ..... square feet	30	50	100	150
Size of Connections ..... inches	1	1¼	1½	2
Price ..... each	**6.00**	**7.50**	**9.00**	**12.00**

Will heat from one to four rooms with radiators.

MALTESE

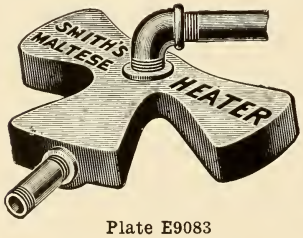


Plate E9083

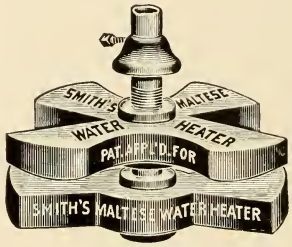


Plate E9084

Number	9	12	15	18	21	24	27	30
Capacity, Radiation ..... sq. feet	30	50	75	100	150	200	250	300
For Heater ..... gallons	30	50	75	100	175	225	300	350
Height ..... inches	2	2½	3	3	3	3½	3½	4
Size of Tapping ..... "	¾	*1	2	2½	3	3	3	3½
Price, Full Size ..... each	**2.80**	**3.80**	**6.00**	**10.00**	**14.00**	**18.00**	**22.00**	**30.00**
" Three-Quarter Size ... "	.....	**3.30**	**5.00**	**8.00**	**12.00**	**16.00**	**20.00**	**27.00**

Full sizes are tapped top and bottom and can be bushed any size. When two or more are coupled together, the three-quarter size is used as bottom section and is tapped on top and middle arm. Can tap right or left arm if so ordered.

*No. 12 is also tapped for 1¼-inch pipe. Necessary collars furnished.

CAST IRON RADIATORS

SINGLE-COLUMN—FOR STEAM OR WATER

ORNAMENTAL

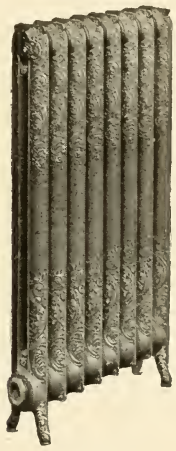


Plate E9091

PLAIN

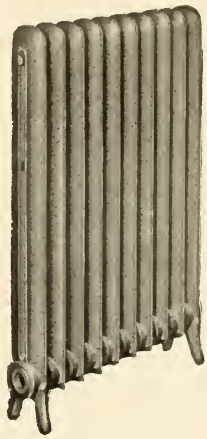


Plate E9092

No. of Sections	*Length Inches	Heating Surface, Square Feet — 38 In. High 3 Sq. Ft. per Section	32 In. High 2½ Sq. Ft. per Section	26 In. High 2 Sq. Ft. per Section	23 In. High 1⅔ Sq. Ft. per Section	20 In. High 1½ Sq. Ft. per Section
2	5	6	5	4	3⅓	3
3	7½	9	7½	6	5	4½
4	10	12	10	8	6⅔	6
5	12½	15	12½	10	8⅓	7½
6	15	18	15	12	10	9
7	17½	21	17½	14	11⅔	10½
8	20	24	20	16	13⅓	12
9	22½	27	22½	18	15	13½
10	25	30	25	20	16⅔	15
11	27½	33	27½	22	18⅓	16½
12	30	36	30	24	20	18
13	32½	39	32½	26	21⅔	19½
14	35	42	35	28	23⅓	21
15	37½	45	37½	30	25	22½
16	40	48	40	32	26⅔	24
17	42½	51	42½	34	28⅓	25½
18	45	54	45	36	30	27
19	47½	57	47½	38	31⅔	28½
20	50	60	50	40	33⅓	30
21	52½	63	52½	42	35	31½
22	55	66	55	44	36⅔	33
23	57½	69	57½	46	38⅓	34½
24	60	72	60	48	40	36
25	62½	75	62½	50	41⅔	37½
Price....per sq. ft.		.70	.76	.84	.88	.96

Above radiators are tapped 2 inches and bushed according to requirements.

*In estimating length of radiator, allow ½ inch for each bushing.

Numerous designs at variance with above can be furnished if desired.

CAST IRON RADIATORS

TWO-COLUMN—FOR STEAM OR WATER

ORNAMENTAL

Plate E9101

PLAIN

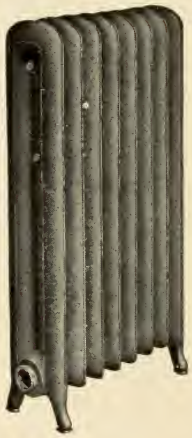


Plate E9102

No. of Sections	*Length Inches	Heating Surface, Square Feet: 45 In. High 5 Sq. Ft. per Section	38 In. High 4 Sq. Ft. per Section	32 In. High 3⅓ Sq. Ft. per Section	26 In. High 2⅔ Sq. Ft. per Section	23 In. High 2⅓ Sq. Ft. per Section	20 In. High 2 Sq. Ft. per Section
2	5	10	8	6⅔	5⅓	4⅔	4
3	7½	15	12	10	8	7	6
4	10	20	16	13⅓	10⅔	9⅓	8
5	12½	25	20	16⅔	13⅓	11⅔	10
6	15	30	24	20	16	14	12
7	17½	35	28	23⅓	18⅔	16⅓	14
8	20	40	32	26⅔	21⅓	18⅔	16
9	22½	45	36	30	24	21	18
10	25	50	40	33⅓	26⅔	23⅓	20
11	27½	55	44	36⅔	29⅓	25⅔	22
12	30	60	48	40	32	28	24
13	32½	65	52	43⅓	34⅔	30⅓	26
14	35	70	56	46⅔	37⅓	32⅔	28
15	37½	75	60	50	40	35	30
16	40	80	64	53⅓	42⅔	37⅓	32
17	42½	85	68	56⅔	45⅓	39⅔	34
18	45	90	72	60	48	42	36
19	47½	95	76	63⅓	50⅔	44⅓	38
20	50	100	80	66⅔	53⅓	46⅔	40
21	52½	105	84	70	56	49	42
22	55	110	88	73⅓	58⅔	51⅓	44
23	57½	115	92	76⅔	61⅓	53⅔	46
24	60	120	96	80	64	56	48
25	62½	125	100	83⅓	66⅔	58⅓	50
Price.....per sq. ft.		.70	.70	.76	.84	.88	.96

Above radiators are tapped 2 inches, and bushed according to requirements.
*In estimating length of radiator, allow ½ inch for each bushing.
Numerous designs at variance with above can be furnished if desired.

CAST IRON RADIATORS

THREE-COLUMN—FOR STEAM OR WATER

ORNAMENTAL

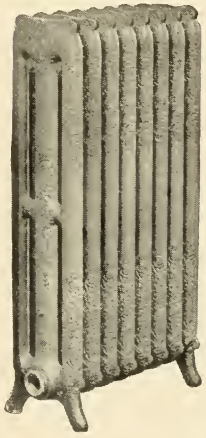


Plate E9111

PLAIN

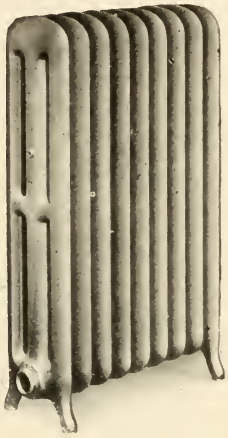


Plate E9112

No. of Sections	*Length Inches	Heating Surface, Square Feet: 45 In. High 6 Sq. Ft. per Section	38 In. High 5 Sq. Ft. per Section	32 In. High 4½ Sq. Ft. per Section	26 In. High 3¾ Sq. Ft. per Section	22 In. High 3 Sq. Ft. per Section	18 In. High 2¼ Sq. Ft. per Section
2	5	12	10	9	7½	6	4½
3	7½	18	15	13½	11¼	9	6¾
4	10	24	20	18	15	12	9
5	12½	30	25	22½	18¾	15	11¼
6	15	36	30	27	22½	18	13½
7	17½	42	35	31½	26¼	21	15¾
8	20	48	40	36	30	24	18
9	22½	54	45	40½	33¾	27	20¼
10	25	60	50	45	37½	30	22½
11	27½	66	55	49½	41¼	33	24¾
12	30	72	60	54	45	36	27
13	32½	78	65	58½	48¾	39	29¼
14	35	84	70	63	52½	42	31½
15	37½	90	75	67½	56¼	45	33¾
16	40	96	80	72	60	48	36
17	42½	102	85	76½	63¾	51	38¼
18	45	108	90	81	67½	54	40½
19	47½	114	95	85½	71¼	57	42¾
20	50	120	100	90	75	60	45
21	52½	126	105	94½	78¾	63	47¼
22	55	132	110	99	82½	66	49½
23	57½	138	115	103½	86¼	69	51¾
24	60	144	120	108	90	72	54
25	62½	150	125	112½	93¾	75	56¼
Price....per sq. ft.		.70	.70	.76	.84	.90	1.00

Above radiators are tapped 2 inches and bushed according to requirements.
*In estimating length of radiator, allow ½ inch for each bushing.
Numerous designs at variance with above can be furnished if desired.

CAST IRON RADIATORS

FOUR-COLUMN—FOR STEAM OR WATER

ORNAMENTAL

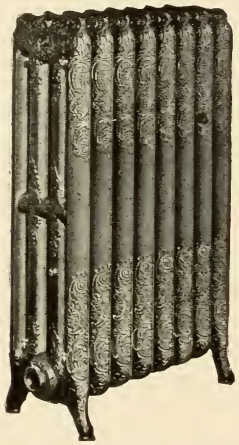


Plate E9121

PLAIN

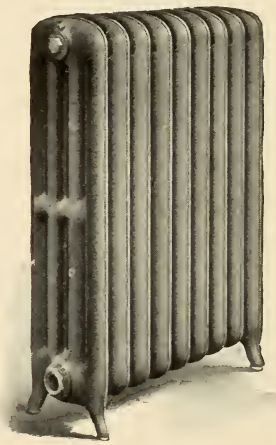


Plate E9122

No. of Sections	*Length Inches	Heating Surface, Square Feet — 45 In. High 10 Sq. Ft. per Section	38 In. High 8 Sq. Ft. per Section	32 In. High 6½ Sq. Ft. per Section	26 In. High 5 Sq. Ft. per Section	22 In. High 4 Sq. Ft. per Section	18 In. High 3 Sq. Ft. per Section
2	6	20	16	13	10	8	6
3	9	30	24	19½	15	12	9
4	12	40	32	26	20	16	12
5	15	50	40	32½	25	20	15
6	18	60	48	39	30	24	18
7	21	70	56	45½	35	28	21
8	24	80	64	52	40	32	24
9	27	90	72	58½	45	36	27
10	30	100	80	65	50	40	30
11	33	110	88	71½	55	44	33
12	36	120	96	78	60	48	36
13	39	130	104	84½	65	52	39
14	42	140	112	91	70	56	42
15	45	150	120	97½	75	60	45
16	48	160	128	104	80	64	48
17	51	170	136	110½	85	68	51
18	54	180	144	117	90	72	54
19	57	190	152	123½	95	76	57
20	60	200	160	130	100	80	60
21	63	210	168	136½	105	84	63
22	66	220	176	143	110	88	66
23	69	230	184	149½	115	92	69
24	72	240	192	156	120	96	72
25	75	250	200	162½	125	100	75
Price....per sq. foot		.70	.70	.76	.84	.90	1.00

Above radiators are tapped 2 inches and bushed according to requirements.

*In estimating length of radiator, allow ½ inch for each bushing.

Numerous designs at variance with above can be furnished if desired.

CAST IRON WINDOW RADIATORS AND WALL BOXES

ROCOCO WINDOW RADIATORS

SIX-COLUMN, PLAIN

No. of Sections	*Length Inches	Heating Surface, Square Feet: 20 In. High 5 Sq. Ft. per Sec.	16 In. High 3¾ Sq. Ft. per Sec.	13 In. High 3 Sq. Ft. per Sec.
2	6	10	7½	6
3	9	15	11¼	9
4	12	20	15	12
5	15	25	18¾	15
6	18	30	22½	18
7	21	35	26¼	21
8	24	40	30	24
9	27	45	33¾	27
10	30	50	37½	30
Price . . . per sq. foot		**.96**	**1.04**	**1.10**

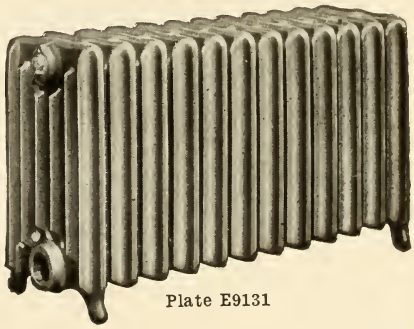


Plate E9131

AETNA FLUE WINDOW RADIATORS

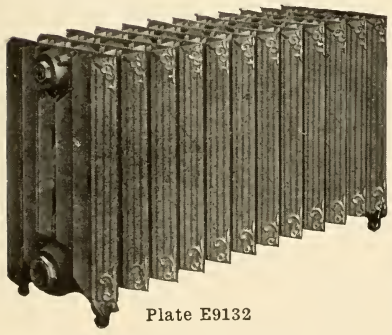


Plate E9132

No. of Sections	*Lgth. Inches	Heating Surface, Square Feet: 20 In. High 6 Sq. Ft. per Sec.	18 In. High 5⅓ Sq. Ft. per Sec.	16 In. High 4⅔ Sq. Ft. per Sec.	14 In. High 4 Sq. Ft. per Sec.	13 In. High 3⅔ Sq. Ft. per Sec.
2	6	12	10⅔	9⅓	8	7⅓
3	9	18	16	14	12	11
4	12	24	21⅓	18⅔	16	14⅔
5	15	30	26⅔	23⅓	20	18⅓
6	18	36	32	28	24	22
7	21	42	37⅓	32⅔	28	25⅔
8	24	48	42⅔	37⅓	32	29⅓
9	27	54	48	42	36	33
10	30	60	53⅓	46⅔	40	36⅔
Price per sq. ft.		**.96**	**1.00**	**1.04**	**1.08**	**1.10**

Above radiators are tapped 2 inches and bushed according to requirements.

*In estimating length of radiator, allow ½ inch for each bushing.

These radiators may be built up to any greater number of sections practicable, and may be furnished in straight, curved or corner forms and in numerous designs at variance with above.

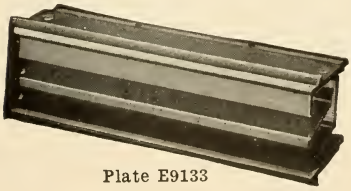


Plate E9133

WALL BOXES

O. S. Dimensions Inches	O. S. Dimensions of Flange Inches	Price Each
5x17½	4¾x17	**5.60**
8x24	7¾x23½	**8.00**

CAST IRON RADIATORS

CORNER

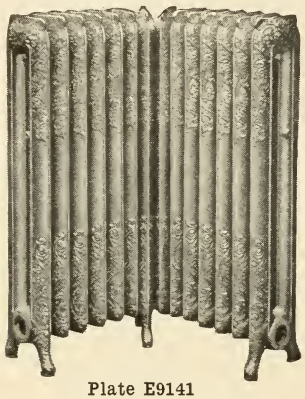


Plate E9141

CIRCULAR

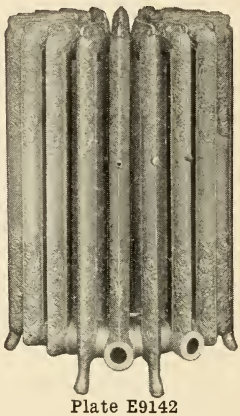


Plate E9142

CORNER

Corner, 15.50 per corner; angle radiators, two angles, 15.50 per radiator; four angles, 21.00 per radiator.

Made up in various heights, sizes and patterns of regular sections. In ordering, give accurate drawing showing angle in which radiator is to be placed, and location of supply when facing corner. Also give length of space for radiator in each arm of the angle.

STEAM OR WATER
ROCOCO PANTRY

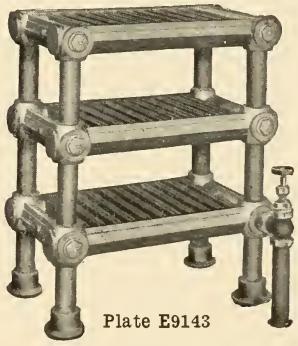


Plate E9143

CIRCULAR ORNAMENTAL

Circular, 12 00 per radiator, plus 1.40 per section.

Circular radiators are built in halves, each half tapped as one radiator. May be furnished in various patterns, sizes, heights and capacities. In ordering, give inside diameter and amount of heating surface required. Prices upon application.

ROCOCO PANTRY

No.	Height Inches	Width Inches	Floor to Lower Section Inches	Heating Surface Sq. Ft.	Price Each
2	17	13¼	4	15	**30.00**
3	27	13¼	4	23	**44.00**
4	37	13¼	4	31	**58.00**
5	47	13¼	4	39	**72.00**

Made only in 23-inch lengths. Can be built up to various heights. In ordering, state whether for steam or water and what size tapping is required They are shipped made up.

CURVED FLUE

These are furnished in various patterns, heights and capacities of regular sections. In ordering, it is important that a heavy paper template, showing exact size and radius, shall accompany the order.

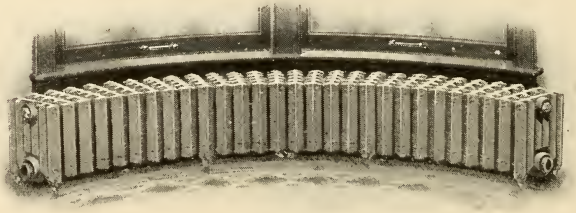


Plate E9144

Curved, 15.50 per radiator plus .54 per section.

RADIATOR BRACKETS, LEGS, ETC.

RADIATOR ON CONCEALED BRACKETS

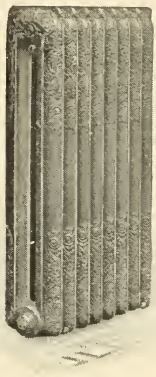


Plate E9151

TOP GUIDE

Plate E9152

BOTTOM SUPPORT

Plate E9153

EXTRA HIGH SOLID LEGS

Plate E9154

DETACHABLE HIGH LEGS

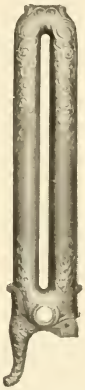


Plate E9155

CONCEALED BRACKETS

For Radiator.....columns	Single	Two	Three	Four
Price.....per set	.60	1.00	1.00	1.20

A set consists of one each top and bottom support. In ordering, specify pattern of radiator, number of sets required and whether for steam or water.

The same data as regards heating surface, threading, nipple connection and tapping, applies to these patterns as to radiators having feet.

LEGS

Extra high Solid Legs, Extra.....per leg section	1.06
Detachable High " " ..... " " "	1.06

In ordering, give distance from floor to center of supply tapping and state for what system to be used on.

PEDESTAL

Plate E9156

SADDLES FOR MARBLE TOPS

FOR STEAM RADIATOR

Plate E9157

FOR HOT WATER RADIATOR

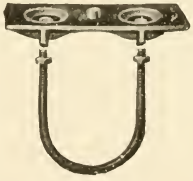


Plate E9158

PEDESTALS

Height.....inches	½, 1	1½	2, 2½	3, 3½	4, 4½	5
Price.....each	.20	.28	.40	.48	.60	.64

SADDLES

Price.....per pair 1.00

In ordering, state whether for single, two, three or four-column radiator.

CAST IRON WALL RADIATORS

FOR STEAM OR WATER

No. 5A

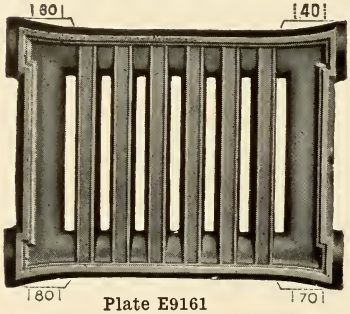


Plate E9161

No. 7A

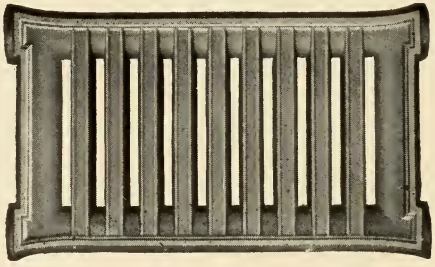


Plate E9162

No. 9A

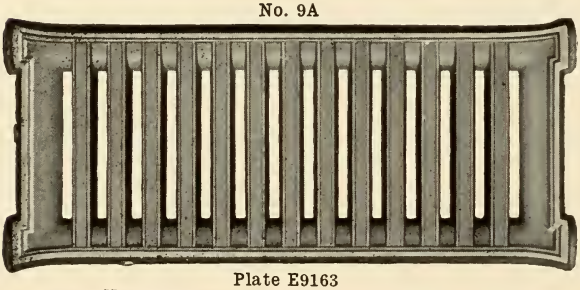


Plate E9163

No. 7B

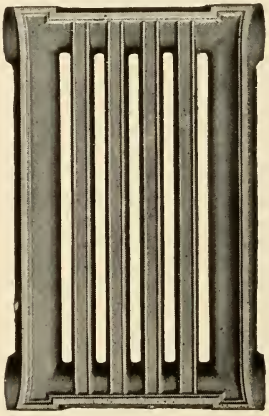


Plate E9164

No. 9B

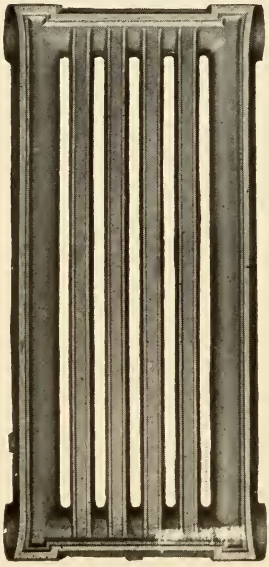


Plate E9165

Sections 5A, 7A and 9A have bars running crosswise of the section and tapped 1½ inches for connecting end to end.

Sections 7B and 9B have bars running the long way of the section and are regularly tapped 1½ inches to be connected side by side. The sections are connected by 1½-inch right and left-hand internal nipples. Tappings may be bushed if desired.

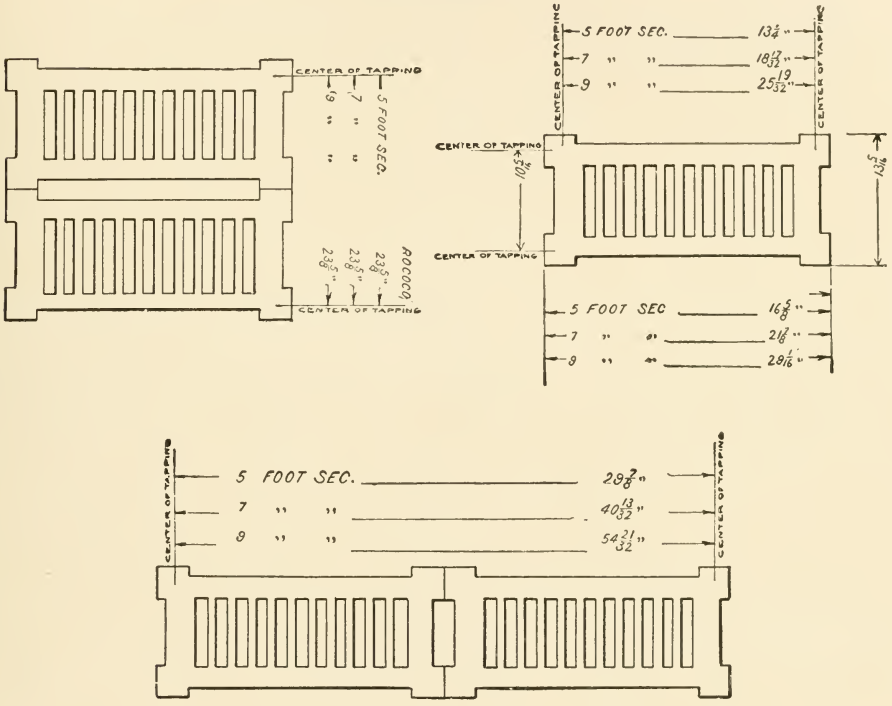
Special tappings at extra charge of **10** cents each, net.

No.	Height Inches	Length or Width Inches	Thickness Inches	Thickness with Bracket Inches	Heating Surface Sq. Feet	Price per Sq. Ft.
5A	13 5/16	16 5/8	2 7/8	3 1/2	5	.82
7A	13 5/16	21 7/8	2 7/8	3 1/2	7	.76
7B	21 7/8	13 5/16	3 1/16	3 11/16	7	.76
9A	13 5/16	29 1/16	2 7/8	3 1/2	9	.76
9B	29 1/16	13 5/16	3 1/16	3 11/16	9	.76

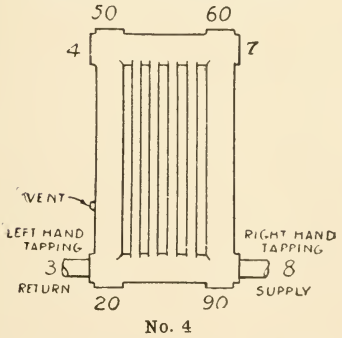
Special catalogue and full information upon application.

CAST IRON WALL RADIATORS

ASSEMBLAGE

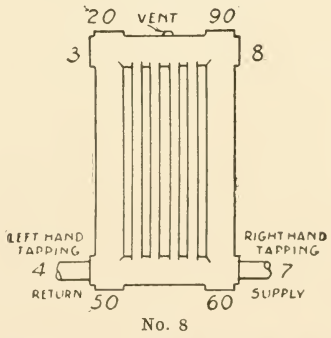


ONE AND TWO-PIPE STEAM



No. 4

WATER



No. 8

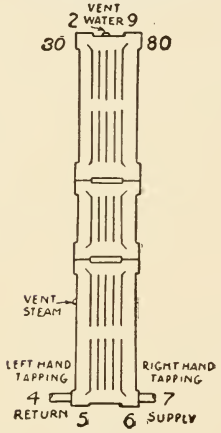
These radiators are tapped 1½ inches supply and return and bushed as desired. The regular tappings are indicated by numbers 2, 3, 4, 5, 6, 7, 8 and 9. Nos. 20, 30, 40, 50, 60, 70, 80 and 90 indicate special tappings which can be furnished if desired and for which an extra charge will be made.

In ordering wall radiators, refer to illustration of style of assemblage or furnish sketch.

CAST IRON WALL RADIATORS

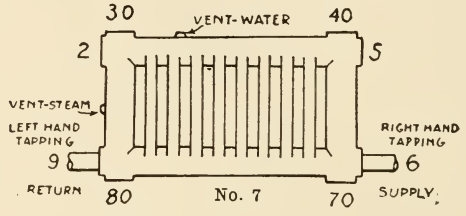
ASSEMBLAGE

THREE SECTIONS IN THREE TIERS—WATER AND ONE AND TWO-PIPE STEAM

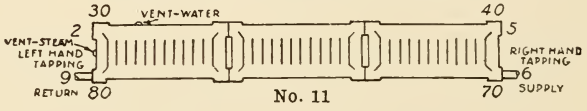


No. 13

WATER AND ONE AND TWO- PIPE STEAM

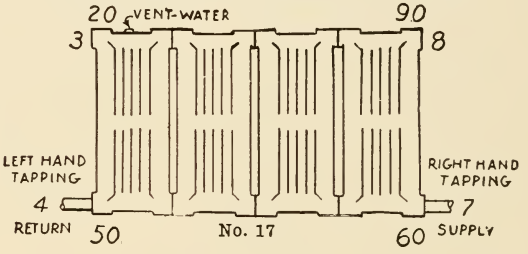


THREE SECTIONS IN SINGLE TIER
WATER AND ONE AND TWO PIPE STEAM

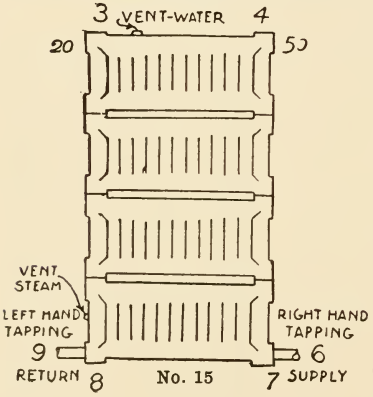


No. 11

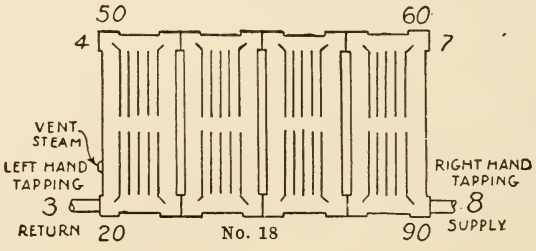
FOUR SECTIONS IN SINGLE TIER—WATER



FOUR SECTIONS IN FOUR TIERS
WATER AND ONE AND TWO-PIPE STEAM



SECTIONS IN SINGLE TIER
ONE AND TWO-PIPE STEAM



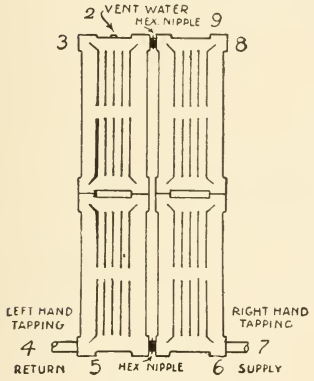
These radiators are tapped 1½ inches supply and return and bushed as desired. The regular tappings are indicated by numbers 2, 3, 4, 5, 6, 7, 8 and 9. Nos. 20, 30, 40, 50, 60, 70, 80 and 90 indicate special tappings which can be furnished if desired and for which an extra charge will be made.

In ordering wall radiators refer to illustrations of style of assemblage or furnish sketch.

CAST IRON WALL RADIATORS

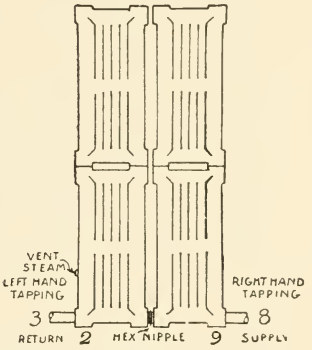
ASSEMBLAGE

FOUR SECTION
IN TWO TIERS—WATER



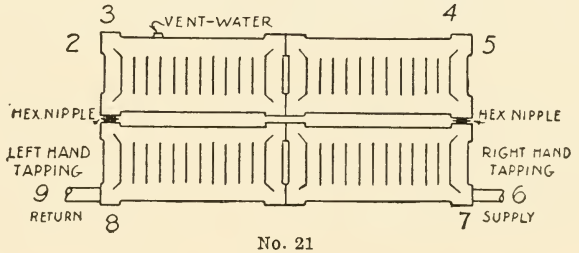
No. 19

FOUR SECTIONS IN TWO TIERS
ONE AND TWO-PIPE STEAM



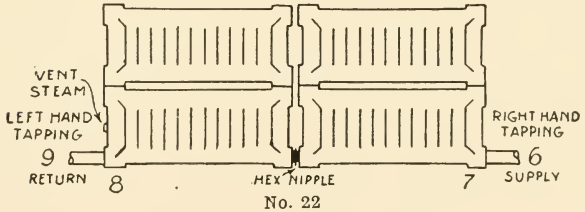
No. 20

FOUR SECTIONS IN TWO TIERS--WATER



No. 21

FOUR SECTIONS IN TWO TIERS—ONE AND TWO-PIPE STEAM



No. 22

These radiators are tapped 1½ inches supply and return and bushed as desired. The regular tappings are indicated by numbers 2, 3, 4, 5, 6, 7, 8 and 9. Nos. 20, 30, 40, 50, 60, 70, 80 and 90 indicate special tappings which can be furnished if desired and for which an extra charge will be made.

In ordering wall radiators refer to illustrations of style of assemblage or furnish sketch.

WALL RADIATOR BRACKETS

REGULAR

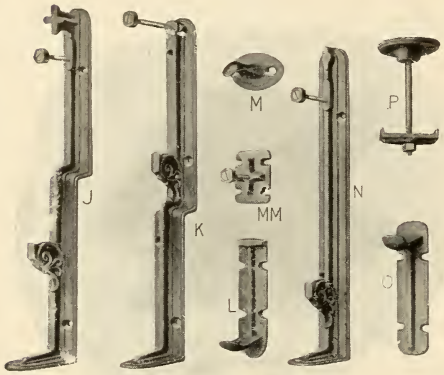


Plate E9201

NEW ARCO ADJUSTABLE (PATENTED)

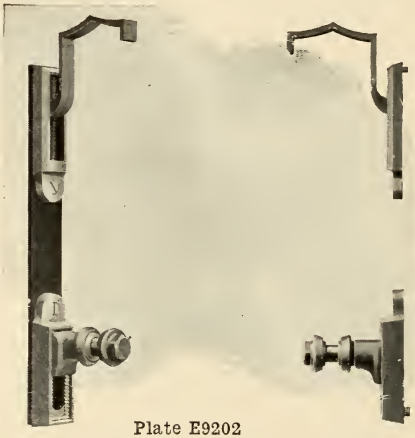


Plate E9202

J brackets are to fit over a 9½-inch high baseboard or skirting and for supporting wall radiators Nos. 7B and 9B. One ¼-inch stove bolt and one button to hold radiator in position furnished with each bracket.

K brackets to fit over baseboard or skirting and for supporting wall radiators Nos. 5A, 7A and 9A, one ¼-inch stove bolt and button furnished with each bracket.

Brackets L, O, MM and M are screwed to wall, baseboard or wainscoting. L and O brackets are bottom supports for all sizes of wall radiators. MM and M brackets are top guides to hold radiator in place. L and MM brackets are concealed; O and M brackets are not. One MM or M bracket should always be provided for use with each L or O bracket. L, O and MM brackets are slotted for four, and the M bracket for two wood screws—not furnished by us. With each MM bracket we furnish one ¼-inch stove bolt and one button.

Bracket N is a straight right angle bracket, without offset, for supporting all sizes of wall radiators; height from floor to center of end tapping bosses, 5½ inches. With each N bracket we furnish one ¼-inch stove bolt and one button.

Ceiling bracket P is made of cast plate, 3½-inch diameter and screwed to ceiling joists by four screws—not furnished by us. The bolt furnished gives a distance of 3½ inches to 5 inches from bottom of radiator to ceiling. Other length bolts can be furnished on special order.

NOTE.—In ordering buttons and stove bolts separately, state for which bracket, because of different lengths of bolts.

New Arco Adjustable are made for all runs of wall radiators in factories, warehouses, theaters, railroad stations and other buildings, garages, schools, churches, residences—any building in which floor space is valuable and wall space available.

Brackets are made in one style only and with suitable bearing plates can be screwed to the wall to accommodate any possible assemblage of wall radiators. By use of these brackets, which permit vertical adjustment of 2 inches, the fitter can adjust for "pitch" after they have been attached to the wall. The brackets set the outer face of the radiator 4¾ inches from the wall.

J-1, * 9½-in.	each	.80	K-5, *8-in., for 3½-in. Baseboard,	each	.72
J-2, * 7½ "	"	.72	K-6, *6 " " 1½ " "	"	.68
J-3, * 5½ "	"	.60	L, M, MM, O	"	.20
K-1, *16 " for 11½-in. Baseboard	"	.88	N	"	.60
K-2, *14 " " 9½ " "	"	.84	P-3½ to 5 Ext	"	1.00
K-3, *12 " " 7½ " "	"	.80	New Arco, with Bearing Plate	"	2.50
K-4, *10 " " 5½ " "	"	.76			

*Height from floor to center of supply or return end of lowest tapping.

INDIRECT HEATING

DIRECTIONS FOR SETTING STEAM INDIRECT

The hanger supporting the return end of the stack should be slightly lower ($\frac{1}{4}$ to $\frac{1}{2}$-inch) than the others so that the water of condensation may have a positive flow toward the return connection. The distance from the top of the stack to the ceiling should be from 10 to 12 inches and the air space below the stack to the bottom of the casing, from 6 to 8 inches. The ceiling over the stack is usually covered with galvanized iron or tin.

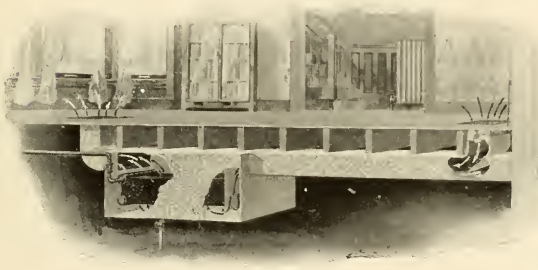


Plate E9211

The illustration shows a good method for incasing indirect radiation and a simple way to secure rotary circulation of the air in the room when it becomes desirable to shut off the out-door supply.

HOT WATER CONNECTIONS

The flow connection to the indirect stack is made to the upper side or end supply tapping, and the return connection is taken from the lower tapping on the opposite side.

When the flow pipe, as shown in the illustration, is at the highest point of its connection to the stack, the air vent must be taken from there, either by attaching an air valve or connecting a $\frac{1}{4}$ or $\frac{3}{8}$-inch iron pipe and carrying same to the expansion pipe or nearest riser. If the flow connection, however, pitches downward from an overhead main to the stack, no special air vent will be required.

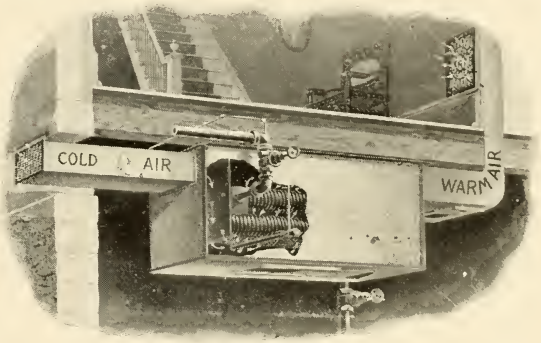


Plate E9212

The illustration shows a good method for encasing the indirect stack, and introducing the fresh air through a galvanized iron duct and delivering the warm air through a side wall register.

DATA FOR EXCELSIOR INDIRECT STEAM RADIATORS

Heating Surface Sq. Feet	Cold Air Supply Sq. Inches	Diameter of Duct if Round Inches	Hot Air Flue Sq. Inches	Size for Brick Work if Hot Air Flues Inches	Size of Register Inches	Ratio of 1 to 30 Cu. Feet	Ratio of 1 to 35 Cu. Feet	Ratio of 1 to 40 Cu. Ft.
24	36	6.8	48	4x12	8x 8	720	840	960
36	54	8.3	72	8x12	9x12	1080	1260	1440
48	72	9.6	96	8x12	10x14	1440	1680	1920
60	90	10.0	120	12x12	12x15	1800	2100	2400
72	108	11.7	144	12x12	12x19	2160	2520	2880
84	126	12.7	168	12x16	14x22	2520	2940	3360
96	144	13.5	192	12x16	14x24	2880	3360	3840
108	162	14.4	226	12x20	16x20	3240	3780	4320
120	180	15.2	240	12x20	16x24	3600	4200	4800
132	198	15.9	264	12x24	20x20	3960	4620	5280
144	216	16.6	288	12x24	20x24	4320	5040	5760

Owing to lower temperature in hot water radiators, the heating surface for any given space should be double that of steam. Flues and registers remain the same as for steam.

CAST IRON INDIRECT RADIATORS

EXCELSIOR

STEAM AND WATER

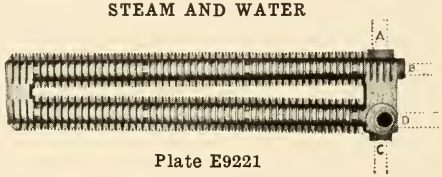


Plate E9221

EXCELSIOR JUNIOR
STEAM AND WATER

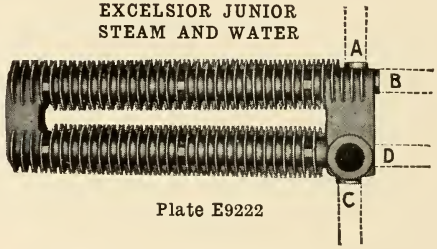


Plate E9222

EXCELSIOR—STEAM OR WATER

Style	Dimensions Inches		Width in Stack Inches	Heating Surface per Section Square Feet	Price per Square Foot
	Length	Height			
Steam	36	8	3⅝	12	.50
Water	36¾	8	3⅝	12	.50

EXCELSIOR JUNIOR—STEAM OR WATER

Style	Dimensions Inches		Width in Stack Inches	Heating Surface per Section Square Feet	Price per Square Foot
	Length	Height			
Steam	23¾	8	3⅝	8	.50
Water	22	8	3⅝	8	.50

When specially ordered the sections may be connected with extra long nipples, to give additional air area between sections: 3⅞, 4⅛ or 4⅜ inches.

Sections are shipped separately unless otherwise specified; when ordered assembled, are shipped in stacks of 5 or 6 sections.

Regular tapping is 1½ inches; supply tapping has right-hand thread; return tapping, left-hand thread. If smaller than 1½-inch tapping be required, a 1½-inch nipple and a reducing elbow should be used, instead of a bushing, to avoid interference with diaphragm opening. As these tapped openings should never be bushed, they are not under any circumstance shipped with bushings.

If location of tapping is desired other than regular, they can be furnished special as shown in above illustration: A, B, C and D, 1½ inches or smaller.

The location and shape of diaphragm or partition is such as to make the circulation of steam absolutely positive, and also allow the water of condensation to pass freely under it and directly to the return pipe. Because of this, diaphragm bushings should not be used.

Tapped ⅜ inch for air vent.

Connected by 1½-inch extra heavy R. and L. nipples with hexagon nut.

CAST IRON PIN INDIRECT RADIATORS

STEAM OR WATER

COMPLETE STACK

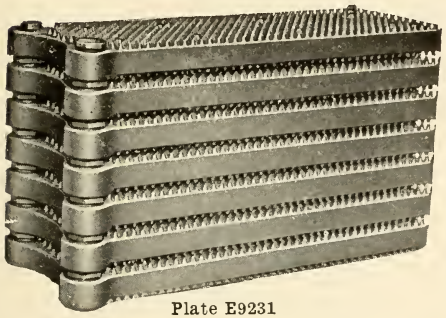


Plate E9231

STANDARD SECTION
WITH THREADED NIPPLE CONNECTION

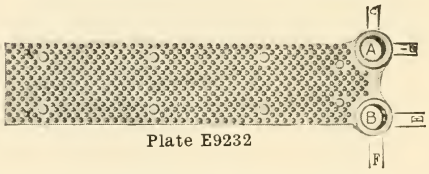


Plate E9232

STANDARD SECTION
WITH FLANGE AND BOLT CONNECTION

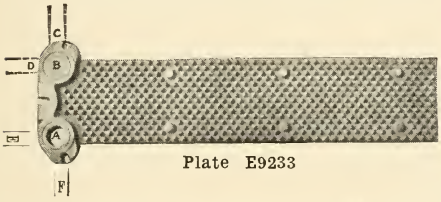


Plate E9233

EXTRA LARGE SECTION
WITH FLANGE AND BOLT CONNECTION

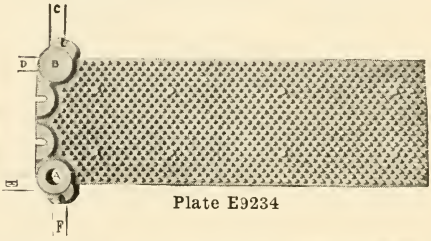


Plate E9234

Size	Dimensions Inches		Height at Connections Inches		Width in Stack Inches	Heating Surface per Section Square Feet	Price per Sq. Ft.
	Length	Height	Nipple Con.	Flange and Bolt			
Standard	36¼	7½	9 13/16	11½	2¾	10	.50
Extra Large	36¼	11½	14	15½	2⅞	15	.50

Sections are shipped separately unless otherwise ordered; when ordered assembled are shipped in stacks of 5 or 6 sections.

Distance between centers can be increased 3, 3¼, 3½ or 3¾ inches in the Standard size and 3⅛, 3⅜, 3⅝ and 3⅞ inches in the Extra Large size, if desired.

RADIATORS WITH NIPPLE CONNECTIONS

Openings will have 2-inch right-hand tapping on one side and 2 inch left-hand tappings on the other. Connected with extra heavy 2-inch right and left-hand threaded hexagon nipples. When tappings are bushed to smaller sizes, the inside tappings in bushings will be right-hand unless otherwise ordered.

If location of tapping is desired other than regular, we can furnish these radiators, when specially ordered, in the Extra Large size with special tappings at A, B, C, D, E and F, 2 inches or smaller; the Standard size can be tapped 2 inches or smaller at A and B or 1¼ inches or smaller at C, D, E and F.

RADIATORS WITH FLANGE AND BOLT CONNECTIONS

All openings will have 2-inch right-hand threads unless otherwise ordered.

If location of tappings is desired other than regular, as shown by A and B in illustration, we can furnish special tappings at C or F 1¼ inches or smaller; D or E, 1¼ inches or smaller.

Tapped for air valve ⅜-inch.

CAST IRON PIN INDIRECT RADIATORS

SANITARY SCHOOL

STEAM SECTION

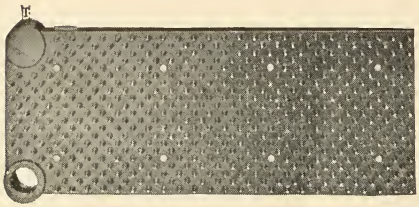


Plate E9241

WATER SECTION

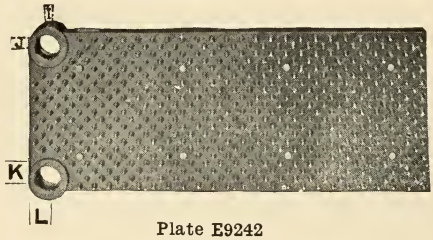


Plate E9242

Length Inches	Height Inches	Height at Connection, Inches	Heating Surface per Section Square Feet	Price Sq. Ft.
36⅛	13⅞	15¼	20	.50

When special tapping (2 inches or smaller) are at I or L, height at connecting point is 15½ inches. When tapping is at J or K, length is 36⅜ inches.

Width each section occupies in stack, 4 inches. If other distances between centers are desired we can furnish nipples giving a distance of 3¾, 4¼ or 4½ inches from center to center of assembled sections.

These indirects are tapped 2 inches, right-hand on supply end and left-hand on the return, and can be bushed to such smaller size as is desired. When tappings are bushed smaller, the inside tappings in the bushings will be right-hand, unless otherwise ordered.

Connected with extra heavy 2-inch right and left-hand threaded nipples, having hexagon nut at center. Steam sections are always shipped separately. Water sections are shipped separately unless otherwise ordered; when ordered assembled they are shipped in stacks of 5 or 6 sections.

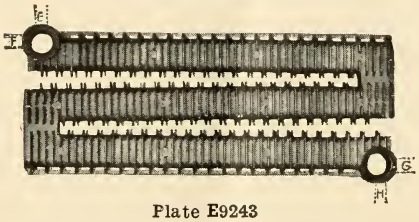


Plate E9243

STERLING

Length Inches	Height Inches	Heating Surface per Section Square Feet	Price Sq. Ft.
36¾	15¾	20	.50

Width each section occupies in stack, 3½ inches; or when specially ordered this can be increased to 3¾, 4, 4¼ or 4½ inches, by using extra long nipples, to give additional air area between sections. Sections are shipped separately unless otherwise ordered; when ordered assembled they are shipped in stacks of 5 or 6 sections.

The nipples used for connecting sections are extra heavy 2-inch, right and left-hand threaded, with hexagon nut at the center.

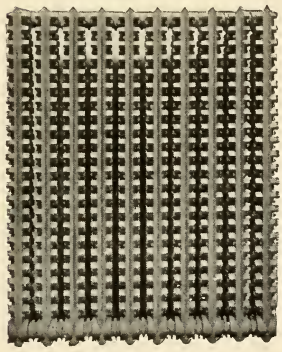
Unless otherwise ordered, Sterling Indirects are tapped 2 inches, right-hand on supply end and left-hand on return end, and can be bushed to any smaller size desired.

If location of tapping is desired other than regular, we can furnish special tappings as shown in above illustration at E, F, G, or H 2 inches or smaller.

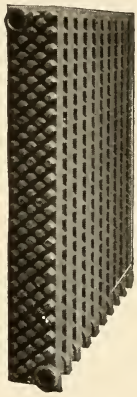
VENTO CAST IRON RADIATORS

FOR FAN OR BLOWER WORK, STEAM OR WATER

FRONT VIEW



END VIEW



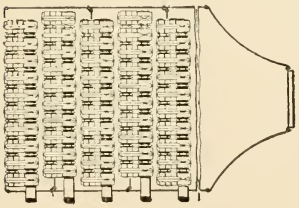
SECTIONAL VIEW

Plate E3251

Length Inches	Height Over All Inches	Width Inches	Heating Surface Square Feet	Price per Square Foot
40	$41\frac{1}{64}$	$9\frac{1}{8}$	$10\frac{3}{4}$	.50
50	$50\frac{29}{32}$	$9\frac{1}{8}$	$13\frac{1}{2}$	.50
60	$60\frac{11}{16}$	$9\frac{1}{8}$	16	.50

Each section occupies 5 inches in group. Distance between centers can be extended by use of 2½-inch wrought iron pipe nipples of necessary length. Tappings, 2½-inch right-hand on supply end and 2½-inch left-hand on return end and bushed to size required. Inside tappings on all bushings furnished with right-hand threads unless otherwise ordered.

Both end sections of each stack have a ⅜-inch tapping for air vent located in the end of a middle pin, 4½ inches from bottom of section and are plugged when shipped.



The illustration herewith shows a top view of the Vento Radiator and the plan of staggering the sections.

Grooves are provided on the bottom of each section for rods made of ½-inch iron pipe, which form a bearing for rolls of ¾-inch pipe placed transversely and about 12 inches apart. This method permits free expansion and contraction, and gives an air space under the radiator, thereby adding to its efficiency.

This radiator is a great improvement over pipe coils for heating and ventilating, also for drying work in lumber kilns, laundries, hotels, factories, mills, etc.

These radiators are shipped in stacks of 5, 6 or 7 sections unless otherwise ordered.

VENTO CAST IRON RADIATORS

REGULAR SECTION—RATINGS AND FREE AREAS

REGULAR 40-INCH SECTION

10.75 Square Feet. Height 41 1/64 Inches. Width 9 1/8 Inches

Number of Loops in Stack	Square Feet of Heating Surface	5-inch Centers of Loops		5 3/8-inch Centers of Loops		4 5/8-inch Centers of Loops	
		Standard 44 per Cent of Face		52 per Cent of Face		37 per Cent of Face	
		Net Air Space in Square Feet	Width of Stack in Inches	Net Air Space in Square Feet	Width of Stack in Inches	Net Air Space in Square Feet	Width of Stack in Inches
10	107.50	6.20	50	7.29	54	5.25	46
11	118.25	6.82	55	8.02	59	5.77	51
12	129.00	7.44	60	8.74	65	6.30	55
13	139.75	8.06	65	9.47	70	6.82	60
14	150.50	8.68	70	10.19	75	7.35	65
15	161.25	9.30	75	10.91	81	7.87	69
16	172.00	9.92	80	11.64	86	8.40	74
17	182.75	10.54	85	12.36	91	8.92	79
18	193.50	11.16	90	13.09	97	9.45	83

REGULAR 50-INCH SECTION

13.5 Square Feet; Height, 50 29/32 Inches; Width, 9 1/8 Inches

		5-inch Centers		5 3/8-inch Centers		4 5/8-inch Centers	
10	135.0	7.68	50	9.05	54	6.50	46
11	148.5	8.45	55	9.95	59	7.15	51
12	162.0	9.22	60	10.85	65	7.80	55
13	175.5	9.99	65	11.75	70	8.45	60
14	189.0	10.76	70	12.65	75	9.10	65
15	202.5	11.53	75	13.55	81	9.75	69
16	216.0	12.30	80	14.45	86	10.40	74
17	229.5	13.07	85	15.35	91	11.05	79
18	243.0	13.84	90	16.25	97	11.70	83

REGULAR 60-INCH SECTION

16 Square Feet; Height, 60 1/16 Inches; Width, 9 1/8 Inches

		5-inch Centers		5 3/8-inch Centers		4 5/8-inch Centers	
10	160.0	9.21	50	10.85	54	7.81	46
11	176.0	10.13	55	11.93	59	8.59	51
12	192.0	11.05	60	13.00	65	9.37	55
13	208.0	11.97	65	14.08	70	10.15	60
14	224.0	12.89	70	15.15	75	10.93	65
15	240.0	13.81	75	16.23	81	11.71	69
16	256.0	14.73	80	17.31	86	12.49	74
17	272.0	15.65	85	18.39	91	13.27	79
18	288.0	16.57	90	19.46	97	14.05	83

RADIATOR VALVES

JENKINS DISC

All Valves Furnished with Rough Body and Polished Trimming, Nickel-plated All Over

ANGLE WITH UNION

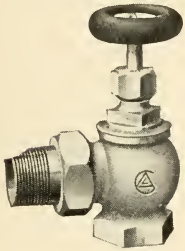


Plate E9271

ANGLE

Plate E9272

GLOBE WITH UNION

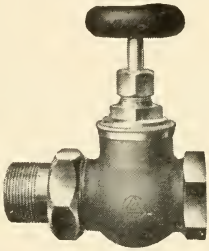


Plate E9273

Size .....inches	½	¾	1	1¼	1½	2
Price, Angle, with Union .....each	3.15	3.80	4.75	6.40	8.10	13.10
" " without Union ..... "	2.30	2.85	3.65	4.90	6.75	11.00
" Globe, with Union ..... "	3.15	3.80	4.75	6.40	8.10	13.10

JENKINS DISC, FOR STEAM CORNER

RIGHT-HAND

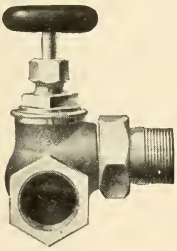


Plate E9274

LEFT-HAND

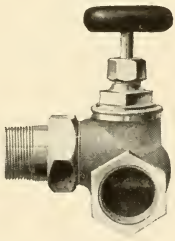


Plate E9275

FOR HOT WATER QUICK-OPENING ANGLE

WITH UNION

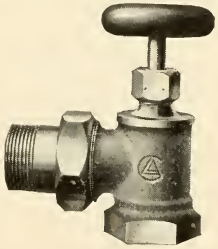


Plate E9276

PLAIN

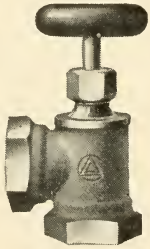


Plate E9277

Size .....inches	½	¾	1	1¼	1½	2
Price, Corner, with Union, R. H. or L. H...each	3.45	4.20	5.25	7.05	8.95	14.45
" " without Union, R. H. or L. H... "	*3.15	3.15	4.00	5.50	7.50	12.10
" Q. O. Hot Water, with Union..... "	2.40	2.85	3.65	5.05	7.10	10.85
" " " " without Union .. "	1.65	1.95	2.65	3.70	5.00	7.75

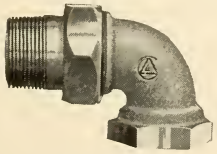


Plate E9278

UNION ELBOWS

With rough body and polished trimmings and nickel-plated all over. Other styles of finishes on application.

Size .....inches	½	¾	1	1¼	1½	2
Price.....each	1.75	2.00	2.50	3.20	4.00	7.00

JENKINS BROS. RADIATOR VALVES

ANGLE VALVE WITHOUT UNION

Plate E9281

ANGLE VALVE WITH UNION

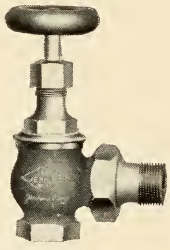


Plate E9282

ANGLE VALVE WITH LOCK SHIELD

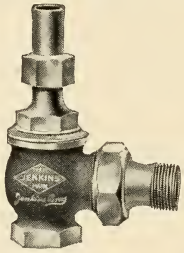


Plate E9283

CORNER VALVE REGULAR PATTERN RIGHT-HAND WITH UNION

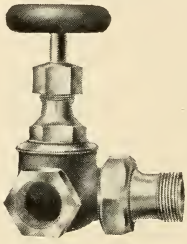


Plate E9284

Radiator valves are usually supplied with male unions on outlet, but valves with either male or female union on inlet or outlet, both inlet and outlet, or screwed ends, can be furnished at short notice.

ANGLE OR GLOBE VALVES—WITHOUT UNION

Size ..... inches	¼	⅜	½	¾	1	1¼	1½	2
Price, Rough Body, Finished Trimmings .... each	1.50	1.85	2.00	2.50	3.20	4.50	6.25	10.50
" Finished All Over ..... "	2.00	2.25	2.50	3.00	3.75	5.25	7.25	11.75
" Rough Body, Nickel-plated Trimmings "	1.80	2.15	2.30	2.80	3.50	4.80	6.55	10.80
" " " " " All Over .. "	1.90	2.25	2.40	2.90	3.60	4.90	6.65	10.90
" Finished and " " " " .. "	2.40	2.70	2.90	3.40	4.15	5.65	7.65	12.15

ANGLE OR GLOBE VALVES—WITH UNION

Size ..... inches	⅜	½	¾	1	1¼	1½	2
Price, Rough Body, Finished Trimmings ..... each	2.60	2.75	3.50	4.30	5.85	7.75	12.60
" Finished All Over ..... "	3.00	3.20	4.00	4.80	6.40	8.75	13.85
" Rough Body, Nickel-plated Trimmings ..... "	2.90	3.05	3.80	4.60	6.15	8.05	12.90
" " " " All Over ..... "	3.00	3.15	3.90	4.70	6.25	8.15	13.00
" Finished and " " " " ..... "	3.45	3.60	4.40	5.20	6.80	9.15	14.25

CORNER VALVES, REGULAR OR OFFSET PATTERN—RIGHT OR LEFT-HAND OUTLET—WITHOUT UNION

Size ..... inches	½	¾	1	1¼	1½	2
Price, Rough Body, Finished Trimmings ..... each	2.25	2.75	3.50	5.00	7.00	11.55
" Finished All Over ..... "	2.75	3.25	4.25	5.75	8.00	12.95
" Rough Body, Nickel-plated Trimmings ..... "	2.55	3.05	3.80	5.30	7.30	11.85
" " " " All Over ..... "	2.65	3.15	3.90	5.40	7.40	11.95
" Finished and " " " " ..... "	3.15	3.65	4.65	6.15	8.40	13.35

CORNER VALVES, REGULAR OR OFFSET PATTERN—RIGHT OR LEFT-HAND OUTLET—WITH UNION

Size ..... inches	½	¾	1	1¼	1½	2
Price, Rough Body, Finished Trimmings ..... each	3.05	3.85	4.75	6.45	8.55	13.85
" Finished All Over ..... "	3.50	4.40	5.30	7.05	9.65	15.25
" Rough Body, Nickel-plated Trimmings ..... "	3.35	4.15	5.05	6.85	8.85	14.15
" " " " All Over ..... "	3.45	4.25	5.15	6.95	8.95	14.25
" Finished and " " " " ..... "	3.90	4.80	5.70	7.45	10.05	15.65

Any Jenkins Bros. Radiator and Corner Valves can be furnished, on special order only, with lock shields, as per above illustration, without extra cost. Tee handle keys for valves ¼ to ¾-inch, 50 cents each; 1 and 1¼-inch, 60 cents each; 1½ and 2-inch, 80 cents each; double keys, 64 cents each.

DETROIT PACKLESS RADIATOR VALVES

Furnished with rough body and polished trimmings, nickel-plated all over.

FOR STEAM

No. 260 ANGLE

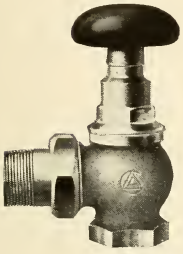


Plate E9291

No. 261 ANGLE

Plate E9292

No. 262 RIGHT-HAND CORNER

Plate E9293

No. 263 LEFT-HAND CORNER

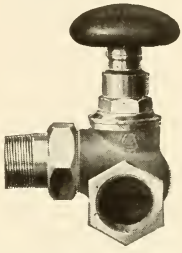


Plate E9294

Size ..... inches	½	¾	1	1¼	1½	2
Price, No. 260 ..... each	3.15	3.80	4.75	6.40	8.10	13.10
" " 261 ..... "	2.30	2.85	3.65	4.90	6.75	11.00
" " 262 or No. 263 ..... "	3.45	4.20	5.25	7.05	8.95	14.45

No. 264, RIGHT-HAND

Plate E9295

No. 265, LEFT-HAND

Plate E9296

No. 266, GATE

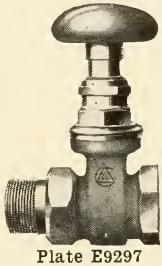


Plate E9297

No. 267, GATE

Plate E9298

Size ..... inches	½	¾	1	1¼	1½	2
Price, No. 264 or No. 265, Corner ..... each	3.15	3.15	4.00	5.50	7.50	12.10
" " 266 ..... "	....	3.80	4.75	6.40	8.10	13.10
" " 267 ..... "	....	2.85	3.65	4.90	6.75	11.00

No. 280, GLOBE

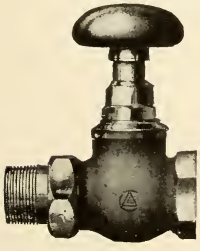


Plate E9299

No. 281, GLOBE

Plate E92910

No. 290, ANGLE

Plate E92911

No. 291, ANGLE

Plate E92912

Size ..... inches	½	¾	1	1¼	1½	2
Price, No. 280 ..... each	3.15	3.80	4.75	6.40	8.10	13.10
" " 281 ..... "	2.30	2.80	3.65	4.90	6.75	11.00
" " 290, for Hot Water ..... "	2.40	2.85	3.65	5.05	7.10	....
" " 291, " " " ..... "	1.65	1.95	2.65	3.70	5.00	7.75

PACKLESS RADIATOR VALVES

LAVIGNE, WITH COMPOSITION DISC, FOR STEAM

WOOD WHEEL PATTERN

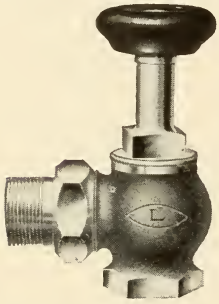


Plate E9301

GRADUATED PATTERN

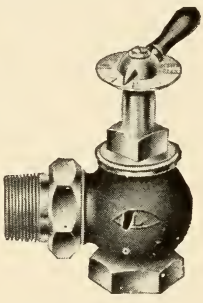


Plate E9302

SECTIONAL VIEW

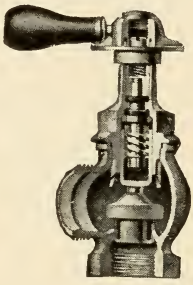


Plate E9303

GRADUATED LOCK SHIELD

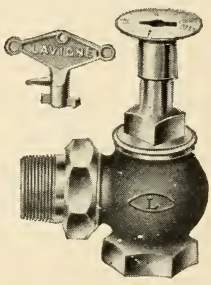


Plate E9304

The Lavigne Packless Valve has a number of decided advantages over any other article of its class. Its packless and quick-opening features are simple and efficient and the interior arrangement cannot be injured by ordinary abuse. The bonnet is carried up to the underside of the follower plate to protect the working parts from any outside interference.

By reference to the sectional view, it will be observed that the stem is of the non-rising type and is provided with a flange a short distance above the thread. Between this flange and the inwardly extending flange of the bonnet is placed a specially prepared composition washer. Another similar washer is placed immediately above the inwardly extending flange of the bonnet, and upon this second composition washer rests a gland shaped follower plate extending from the handle. A shoulder is formed on the inside of the follower plate and this shoulder supports a spring which bears upward against a nut screwed to the top of the stem. A double service is performed by this spring, as it bears downward on the upper composition washer and at the same time pulls upward against the lower composition washer, thus holding both of them tightly against the inwardly extending flange of the bonnet and taking up automatically any wear that may occur in either. This insures an absolutely tight joint against water, steam or air.

The valve also has a genuine quick-opening feature, as it can be fully opened or fully closed with about a three quarter turn of the handle.

The Lavigne Graduated Packless Valve is similar in construction to the valve illustrated and described above, except that it has the additional advantage of a lever handle, an indicator plate graduated into eight sections and means for a special adjustment by which each valve can be accurately set for a wide range of sizes of radiators.

With each graduated valve is furnished four different shells, any one of which may be attached to the disc holder below the disc. If the valve is to be connected to a very small radiator, the shell with a single slot should be used, while if the radiator is medium or large sized, shells with two, three or four slots should be employed. It will remain partly open at any desired position, without any danger of variation of the openings unless the handle is moved.

WITH UNION—ROUGH BODY, PLATED ALL OVER

Size.....inches	½	¾	1	1¼	1½	2
Price, Wood Wheel, Pattern, Angle.....each	3.15	3.80	4.75	6.40	8.10	13.10
" " " Corner..... "	3.45	4.20	5.25	7.05	8.95	14.45
" Graduated " Angle, with Shells.. "	4.00	4.80	5.85	7.65	9.50	15.00
" " " Corner, " " .. "	4.30	5.20	6.35	8.30	10.35	16.35
" " " Angle, without " " .. "	3.75	4.50	5.50	7.25	9.00	14.30
" " " Corner, " " .. "	4.05	4.90	6.00	7.90	9.85	15.65

Upon special order, the above valves can be furnished with lock shield. Plated keys, 50 cents list each, extra.

Unless otherwise specified, graduated valves will be shipped with shells.

HONEYWELL "UNIQUE" HOT WATER RADIATOR VALVES

POSITION OF VALVE RADIATOR TURNED ON

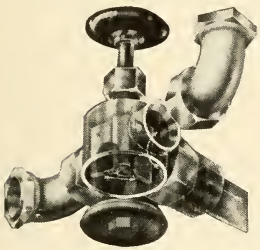


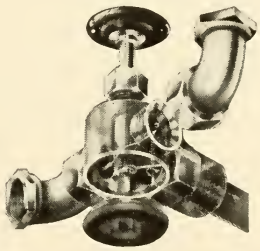
Plate E9311

The "Unique" Valve is designed to be connected to only one end of a radiator. By its use it is only necessary to extend the risers through the floors to the valve elbows. This avoids taking up flooring and cutting joists in order to extend return pipe to the other end of the radiator. The "Unique" Valve thus saves pipe, saves labor, saves weakening floor supports, saves leaks between floors and ceilings.

The valve, as will be noticed, has an adjustable elbow on each side, permitting connections to pipe from any direction. When attached to the radiator a thin piece of metal extends through the first radiator section. This diaphragm causes the water entering through one side to rise in the first section, circulate across the top, down through the other sections and out on other side of valve. It also insures a most rapid circulation, as there are no conflicting currents of water in the radiator. The construction of the "Unique" Valve is very simple and it cannot get out of order. The gates divert the flow of water into the radiator on one side of the diaphragm and allow it to return through the other side.

By a one sixth turn of the valve handle the position of the gates is so changed that the opening to radiator is closed and a by-pass formed in the valve, the full area of the piping, a feature that can hardly be overestimated. The flow of water is then directly through the valve body and piping. There is a continuous circulation through the piping and valve body, even though the radiator be turned off. The instant the valve is opened hot water enters the radiator.

POSITION OF VALVE RADIATOR TURNED OFF



Small openings provided in the gates, allow sufficient water to flow through the radiator to prevent freezing even in the coldest weather, when the radiator is turned off.

"Unique" Valves are made of the best valve metal and by skilled mechanics. The valves are symmetrical in design and bear the highest finish. "Unique" Valves are especially desirable for connecting radiators on second and higher floors.

The valve elbows are on right centers for risers, making it only necessary to bore holes through the floor. Where hot water heating is installed in old buildings having hardwood floors, this feature is most appreciated.

Size ..... inches	½	¾	1	1¼
Center of Body to End of Spud ..... inches	2⅞	2⅞	3	3¼
" to Center of Ells ..... "	5½	5¾	7	7½
" of Spud to Bottom of Ells ..... "	1⅞	1⅞	2	2⅝
Radiators should be Tapped for Valve ..... "	1¼	1¼	1½	2
Price ..... each	4.25	5.40	5.80	7.95

RADIATOR AIR VALVES

COMPRESSION

No. 1 WOOD WHEEL

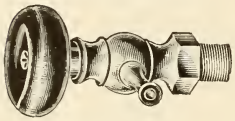


Plate E9321

No. 2 WOOD WHEEL

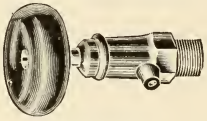


Plate E9322

No. 3 WITH KEY

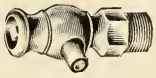


Plate E9323

No. 4 WITH KEY

Plate E9324

Number	1	2	3	4
Price, Nickel-plated, each	.70	.70	.70	.70

AUTOMATIC

ALLEN

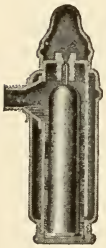


Plate E9325

NORWALL

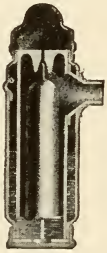


Plate E9326

NORWALL SYPHON

Plate E9327

McDONALD

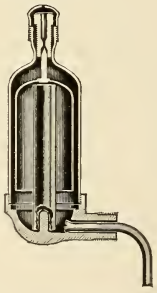


Plate E9328

Allen and Norwall Valves are all metal and non-adjustable, air is the expansible principle. The operation of the two valves is the same, the Norwall being heavier and larger than the Allen.

Norwall Syphon Valves are made entirely of metal, require no adjustment and cannot be tampered with.

Price, Allen	each	1.00
" Norwall	"	1.30
" " Syphon	"	1.70
" McDonald	"	1.00

SYLPHON VENT VALVES

No. 525

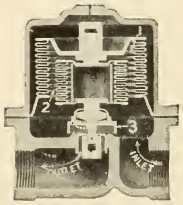


Plate E9329

No. 526

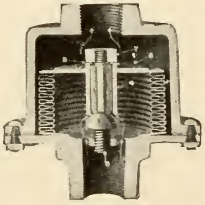


Plate E93210

No. 528

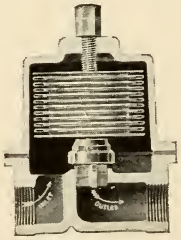


Plate E93211

No. 527

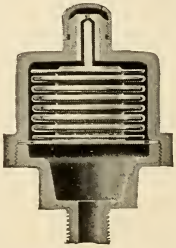


Plate E93212

For use on two-pipe vapor, vacuum or atmospheric work.

No. 525 opens under few ounces pressure, closes when steam reaches valve. No. 526 opens under few ounces pressure, continues to vent till 12-ounce pressure is reached. No. 528, no pressure required to open valve, closes when steam reaches it. No. 527 for use on risers, ends of mains, etc., when a large amount of air must be vented quickly.

Price, No. 525, 1-inch Inlet and Outlet	each	15.00
" " 526, 1 " " " "	"	10.00
" " 528, 1 " " " "	"	12.50
" " 527, ¼ " "	"	3.00

HOFFMAN RADIATOR AIR VALVES

No. 1

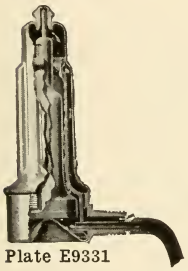


Plate E9331

No. 3

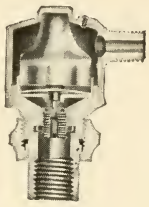


Plate E9332

No. 4

Plate E9333

No. 2

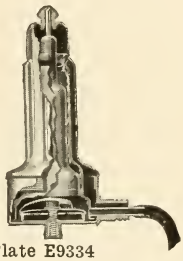


Plate E9334

The expansible medium of these valves is a volatile or heat sensitive fluid which is contained in a sealed metal chamber having a flexible bottom of phosphor-bronze. They are made entirely of metal and are absolutely non-adjustable.

No. 1 Hoffman Syphon Air Valve distinguishes between steam or water and air, closing tight against steam or water but freely vents all air from the radiator. Price, each **1.90**

No. 3 Hoffman Air Line Valve, designed for drip line or vacuum air line service. Male thread $\frac{1}{8}$ inch. Female thread $\frac{1}{4}$ inch. Price.....each **2.50**

No. 4 Hoffman Junior Quick Vent Air Valve, designed for quick vent service where water is not a factor. The vent port is $\frac{3}{32}$ inch in diameter; valve closes tight against steam emission, but does not close against water. Threaded $\frac{1}{4}$ inch. Price, each **2.80**

No. 2 Hoffman Syphon Air and Vacuum Valve functions in every way the same as valve No. 1, but after the air is once out it keeps it out. Price.....each **4.50**

No. 5

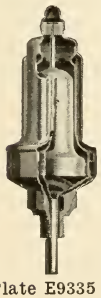


Plate E9335

No. 8

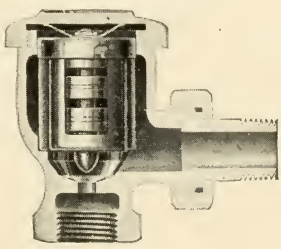


Plate E9336

No. 6

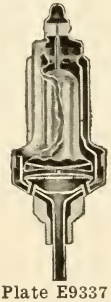


Plate E9337

*No. 5 Hoffman Quick Vent Float Air Valve, for quick vent service where it is desired to control or prevent the emission of either steam or water through the valve. Vent port $\frac{1}{16}$ inch. Threaded $\frac{3}{8}$ inch. Price.....each **8.00**

No. 8 Hoffman Return Line Thermostatic Valve. $\frac{1}{2}$-inch angle pattern only. Vent port $\frac{1}{4}$-inch. Positively distinguishes between steam, water and air, freely passing the water and air but closing tight against steam. Price.....each **6.00**

No. 8 made also in right and left hand corner and straightway. Price, each **6.00**

No. 9, $\frac{3}{4}$-inch angle. Price .....each **8.00**

*No. 6 Hoffman Quick Vent Float Air and Vacuum Valve, for quick vent service where it is desired to control or prevent the emission of either steam or water through the valve, and also to prevent the return of air to the stack or line to which the valve is connected. Vent port $\frac{1}{16}$ inch. Threaded $\frac{3}{8}$ inch. Price.....each **12.00**

*Vent port can be made $\frac{3}{16}$ inch when pressure is not over three pounds.

FLOOR AND CEILING PLATES

CAST IRON

SOLID CEILING PLATE

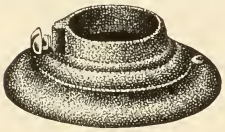


Plate E9341

SPLIT CEILING PLATE

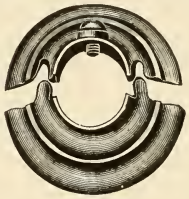


Plate E9342

Size.....inches	½	¾	1	1¼	1½	2	2½
Price, Solid Ceiling Plates.....each	.11	.13	.16	.18	.23	.27	.36
" Split " " ..... "	...	.22	.28	.32	.40	.50	.65
Size.....inches	3	3½	4	5	6	8	....
Price, Solid Ceiling Plates.....each	.50	.55	.68	.95	1.25	....	....
" Split " " ..... "	.90	1.00	1.20	2.00	2.50	3.75	....

B. & C. FLOOR AND CEILING PLATES

No. 7
COMBINATION FLOOR AND CEILING PLATE

Plate E9343

No. 8
PLUMBER'S PLATE

Plate E9344

No. 10
STEEL COMBINATION

Plate E9345

Size.....inches	⅜	½	¾	1	1¼	1½
Price, No. 7, Nickel-plated.....each	.26	.27	.28	.32	.35	.38
" " 8, N. P. Iron..... "	.28	.30	.32	.35	.40	.45
" " 8, Pol. or N.P. Brass..... "	1.10	1.20	1.30	1.40	1.80	2.00
" " 10, Nickel-plated..... "	.26	.27	.28	.32	.35	.38
Size.....inches	2	2½	3	3½	4	....
Price, No. 7, Nickel-plated.....each	.45	.65	.80	....	....	....
" " 8, N. P. Iron..... "	.50	....	....	....	....	....
" " 8, Pol. or N. P. Brass..... "	2.20	....	....	....	....	....
" " 10, Nickel-plated..... "	.45	.65	.80	1.00	1.25	....

No. 2 TELESCOPING FIREPROOF FLOOR SLEEVES

Plate E9346

Size of Pipe.....inches	¾	1	1¼	1½	2	2½
Minimum Length .. "	14	14	14	14	14	14
Maximum " .. "	24	24	24	24	24	24
Price.....each	1.05	1.20	1.35	1.50	1.80	2.10
Size of Pipe.....inches	3	3½	4	5	6	8
Minimum Length .. "	14	14	14	14	14	14
Maximum " .. "	24	24	24	24	24	24
Price.....each	2.50	3.00	3.75	4.50	5.25	6.75

DIAMOND RETURN FITTING

CAST IRON

FOR SINGLE MAIN HOT WATER HEATING

When installing a hot water heating plant requiring 1000 feet or more of radiation, the single main (one main for supply and return) is coming generally into use as it gives greater satisfaction and is more cheaply installed. This method of installation, however, necessitates the use of a special return fitting as illustrated below.

A regular Tee is used in the main, from which the flow or supply pipe is taken, turning this opening upward and using a 45° elbow or regular elbow to run to the riser. The return fitting is then placed the width of the radiator or distance between risers back of the flow fitting.

The use of this fitting insures positive circulation of the flow through the flow fitting and of the return through the return fitting and it also permits the opening for the flow and return pipes to be taken out of the main pipe at their proper places; it likewise makes a neat and workmanlike finish.

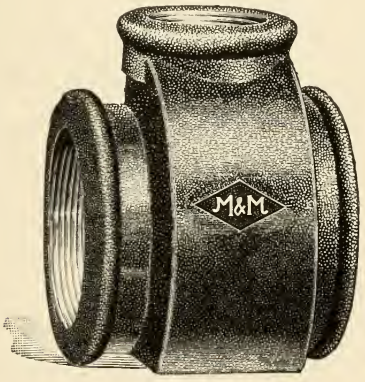


Plate E9351

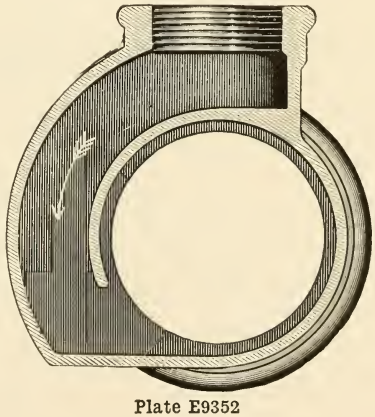


Plate E9352

Size.....inches	2½x1	2½x1¼	2½x1½	2½x2	3x1	3x1¼
Price.....each	**1.30**	**1.30**	**1.30**	**1.30**	**1.45**	**1.45**
Size.....inches	3x1½	3x2	3½x1	3½x1¼	3½x1½	3½x2
Price.....each	**1.45**	**1.45**	**1.60**	**1.60**	**1.60**	**1.60**
Size.....inches	4x1	4x1¼	4x1½	4x2	.....	.....
Price.....each	**1.90**	**1.90**	**1.90**	**1.90**	.....	.....

DIAMOND RADIATOR RISER FITTINGS

CAST IRON

The Diamond Radiator Riser Fittings are designed to be used either in steam or hot water heating, where the radiators are placed one above another on different floors. The branch water-way is larger than the pipe leading from it, thus avoiding any possible friction. They save all work under or between joists and also several fittings, including a floor plate, all of which are necessary in the usual method of making connections.

They insure a positive circulation of water in radiators on lower floors and this assurance can not always be given when regular fittings are used. For Hot Water the fitting is used also on the return. They are economical in labor and made in all standard sizes as listed.

Considering the number of fittings and floor plates saved they are much cheaper and neater, and insuring circulation, they are likewise more practical.

STYLE A

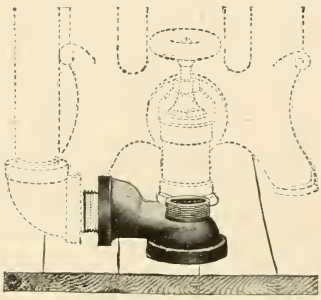


Plate E9361

STYLE B

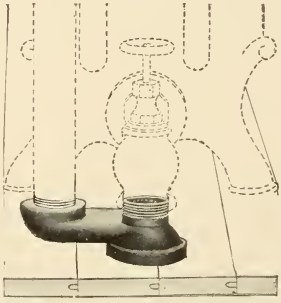


Plate E9362

STYLE C

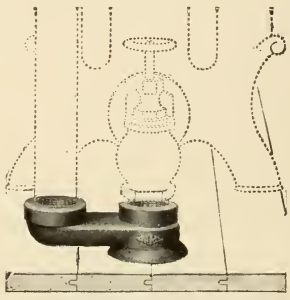


Plate E9363

By using a nipple and an elbow **STYLE A** is suited when the Radiator above does not set directly over the one on the floor below.

STYLE B is just the proper length to keep the pipe clear of wall or baseboard when Radiators are directly in line perpendicularly.

STYLE C for use same as B, but being connected to valve by nipple, permits an adjustment that will always bring the fitting flush with the floor.

SIZES AND PRICES, ALL STYLES

Size, Inches Bottom		Top		Side	Price Each
1¼	x	1	x	1	.70
1¼	x	1¼	x	1	.70
1½	x	1¼	x	1	.70
1½	x	1	x	1¼	.70
1½	x	1¼	x	1¼	.75
2	x	1¼	x	1½	.85
2	x	1½	x	1	.85
2	x	1½	x	1¼	.85
2	x	1½	x	1½	.90
2½	x	2	x	1½	1.25
2½	x	1½	x	2	1.25
2½	x	2	x	2	1.25

HONEYWELL HEAT GENERATORS

POSITION OF MERCURY AND WATER WHEN GENERATOR IS PRODUCING NO PRESSURE

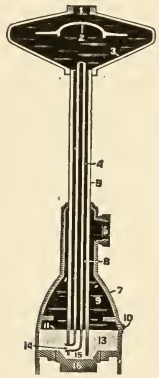


Plate E9371

POSITION AND ACTION OF MERCURY AND WATER WHEN GENERATOR IS IN COMPLETE OPERATION PRODUCING 10 POUNDS PRESSURE

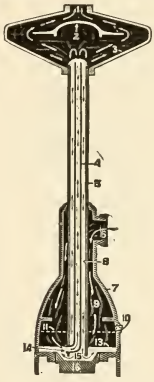
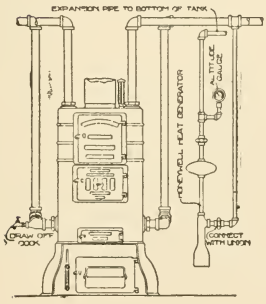


Plate E9372

These generators are designed to meet the demand for a device to quicken the circulation in hot water heating jobs.

When connected to the expansion pipe of an ordinary gravity plant, this generator seals the circuit and permits the generation of a slight pressure up to 10 pounds, at which point it relieves itself through the operation of a mercury seal, eliminating any element of danger.

SHOWING GENERATOR ATTACHED TO HOT WATER BOILER



The pressure created by this generator will remedy any unsatisfactory job of hot water heating where the radiation is insufficient, the piping too small for gravity, the circulation sluggish, causing large fuel consumption, or where the water boils easily from quick firing, providing, of course, the boiler is large enough to supply the heat. It greatly improves jobs which contain long horizontal mains, or where the radiation is all on the first floor.

In new work it permits a reduction in radiation, and smaller piping as advocated in the Honeywell system, the system of low cost and high efficiency. It is positive and automatic, is sold under the strongest guarantee, will last a lifetime, and cannot get out of order.

Number	1	2	3	4
For Radiation ..... square feet	1200	2500	3500	10000
Size of Inlet ..... inches	¾	1	1¼	1¼
" " Outlet ..... "	1	1	1¼	1¼
Price ..... each	25.00	35.00	50.00	65.00

NEFCO HEAT GENERATORS

(Patent Applied For)

Plate E9381

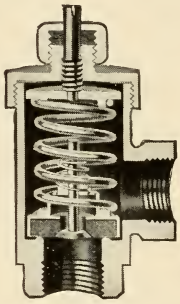


PLATE E9381

The **NEFCO** Heat Generator can be placed anywhere on the line to expansion tank that is most convenient—either in a vertical or horizontal position. It is set against a ten-pound pressure—that is, it will confine the water in the system until a pressure of ten pounds is created by the expansion of the water, in addition to the natural pressure of the water in the system.

This confinement of water in the system means a more vigorous and rapid circulation, heated to a much higher temperature, thereby causing a substantial saving of coal.

The **NEFCO** System permits using one size smaller radiator valves and connections from main than with the open tank system, thereby effecting a saving in cost of material and labor of installation, besides, much quicker results are obtained, as there is not so much water in the system to heat.

WHEN THE PRESSURE of the water in the system due to expansion reaches that point to overcome the pressure of the Generator against it, the valve opens and the water passes to the expansion tank. When the water cools and contracts, it returns to system through check valve in Generator.

THE NEFCO HEAT GENERATOR is made of high-grade brass. The springs are phosphor-bronze, the valves are provided with Jenkins Bros.' discs, are absolutely noiseless, requiring no air chamber or rubber bumpers, and will last as long as the plant itself.

They are adjusted to operate at ten pounds pressure, but can be adjusted instantly to operate at twenty-five pounds pressure for tank in basement system. In the event that an increased pressure is desired, adjustment can easily be effected by the adjusting pin without disconnecting from system or drawing off any water.

THE NEFCO HEAT GENERATOR is offered to the trade with full confidence that it will meet with every demand of the most exacting client. It is thoroughly guaranteed in every respect, and will do all that any device on the market intended for the same purpose will do, and costs much less money.

Diameter, 2 inches; height, 5 inches; inlet and outlet, ¾-inch; weight, 2 pounds.

Price, each..... **10.00**

HONEYWELL TEMPERATURE REGULATORS

MODEL 4

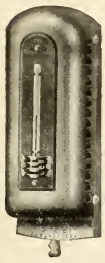


Plate E9391

WALL PLATE

Plate E9392

Model 4 plain pattern is like others but without clock. It is used where clock control is unnecessary, setting of the indicator being done by hand.

MODEL 6

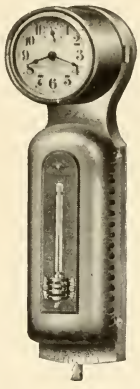


Plate E9393

MODEL 8

Plate E9394

GRAVITY MOTOR

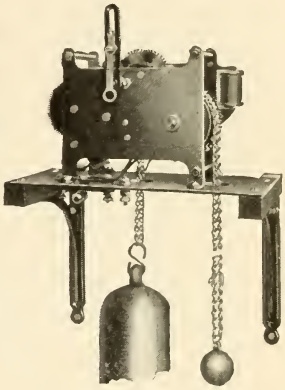


Plate E9395

Model 6 one-day clock thermostat is equipped with a one-day clock which automatically sets the temperature indicator up in the morning at any predetermined time.

Model 8 thermostat is fitted with a high-grade eight-day clock which enables it not only to raise the temperature in the morning, as other thermostats do, but automatically lower it at night any desired time, and to any predetermined degree, with no attention whatever except to wind the clock once a week. The clock is wound from the front and is not removed from the thermostat for winding. The clock mechanism can be disengaged and the thermostat set and operated by hand when desired.

Thermostats attached to insulated wall plate, wiring made to binding posts on plate.

The spring motor is fitted with a spring of sufficient size to operate the motor from 60 to 75 times on one winding and has ample power to lift the heaviest heater dampers.

The gravity motor in operation is similar to spring motor, except that the motive power is supplied by a 10-pound weight, and gives from 20 to 25 operations on one winding.

Non-wind motors operate on regular A. C. house lighting circuit, reduced to 12 volts through a small transformer. The high voltage lighting current does not connect with or operate any part of the Honeywell Non-wind A. C. Motor Regulator. An automatic cut-out switch on spring and gravity motors prevents them from running down and leaving draft or valve open. All Honeywell motors are equipped with a basement switch so drafts can be operated in basement while coaling heater.

SPRING MOTOR

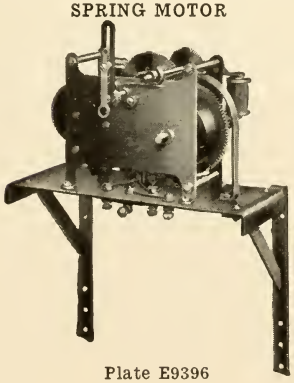


Plate E9396

NEW MODEL GRAVITY MOTOR REGULATORS

Model G-4, Plain Thermostat	33.00
" G-6, One-day Clock Thermostat	42.00
" G-8, Eight-day Clock Auto. Thermostat	51.00

SPRING MOTOR REGULATORS

Model 4, Plain Thermostat	38.00
" 6, One-day Clock Thermostat	47.00
" 8, Eight-day Clock Automatic Thermostat	56.00

NON-WIND ELECTRIC MOTOR REGULATORS A. C. OR D. C.

Model 14, Plain Thermostat	54.00
" 16, One-day Clock Thermostat	63.00
" 18, Eight-day Clock Automatic Thermostat	72.00
" 4, Plain Pattern Thermostat only	14.00
" 6, One-day Clock Pattern Thermostat only	22.00
" 8, Eight-day Automatic Thermostat only	30.00
New Gravity Motor only (with Brackets, Cranks, Weights)	17.00
Spring Motor only (with Brackets, Cranks and Key)	22.00
Electric Motor only (with Brackets and Cranks)	40.00

MINNEAPOLIS HEAT REGULATORS

GRAVITY MOTOR

Plate E9401

SPRING MOTOR

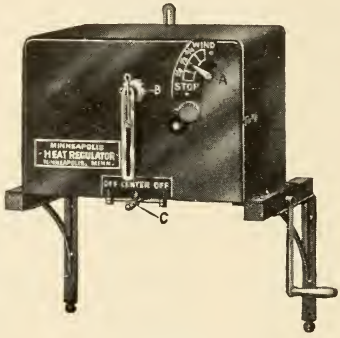


Plate E9402

DIRECT CURRENT MOTOR

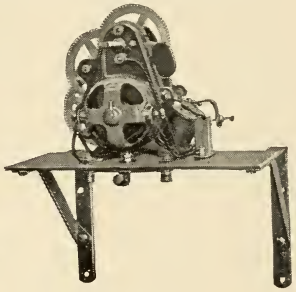


Plate E9403

Gravity Motor

Designed to be fastened to the ceiling of the basement. Is enclosed in a pressed steel case, finished in black enamel, baked. The power is furnished by an iron weight, which is of ample size to lift all dampers on the modern types of furnaces, and no special expensive dampers are necessary. All motors, when run down, automatically leave the drafts closed.

Two cells of open circuit battery are used, and as no work is required of the battery except releasing the motor, and it is in service only a second at a time, it will last a number of years. Furnished only with No. 35 regulator.

Spring Motor

The spring motor is encased in a solid pressed steel cover, No. 22 gauge, finished in black enamel, baked. There is an index finger with scale which travels as the motor is wound and unwound, a glance at the motor showing at all times the condition in reference to winding. The cover is dustproof. The motor is also provided with basement switch by means of which the motor can be operated in the basement at will. Easily wound by means of a crank key. Furnished with Nos. 40, 47, 55, 60 and 65 regulators only.

Direct Current Motor

This motor has ample power and is capable of handling the heaviest work that a heat regulator can be put to. Power is furnished by four dry cells which have ample power to operate the device for a full heating season. A new set of dry cells should be installed each fall. Aside from replenishing the batteries and oiling once a year it requires no attention. All shafts run in finely adjusted brass bushings and motor is as finely adjusted as a high priced clock. Motor is encased in a dustproof, 22 gauge steel cover, handsomely finished in black enamel. Furnished with basement switch by which it may be operated at will in the basement. Furnished with Nos. 40, 47, 55, 60 and 65 regulators only.

Alternating Current Motor

Designed to operate directly from the house lighting circuit. Connect directly to lighting circuit and turn on power. Operates with 110-volt, 60-cycle alternating current, but a small transformer is mounted on bottom of the case and this cuts down the voltage of the current which operates the thermostat and magnet coils. This makes the installation very simple, as the motor and transformer are complete in one unit. Furnished with Nos. 40, 47, 55, 60 and 65 regulators only.

Regulators Number	Time Attachment	Price, Each			
		Gravity Motor	Spring Motor	D. C. Motor	A. C. Motor
35	One-Day Clock	35.00	....	....	....
40	None	....	40.00	50.00	60.00
47	One-Day Clock	....	47.00	57.00	67.00
55	Duplex	....	55.00	65.00	75.00
60	Eight-Day Clock	....	60.00	70.00	80.00
65	Hot Water Regulator	....	65.00	75.00	85.00

Thermometer to repair above Thermostats, each, 1.30.

All prices include batteries, wire, hardware and directions ready to install. Shipping weight, approximately 30 pounds.

MINNEAPOLIS HEAT REGULATORS

No. 35 No. 40 No. 47 No. 55 No. 60 No. 65

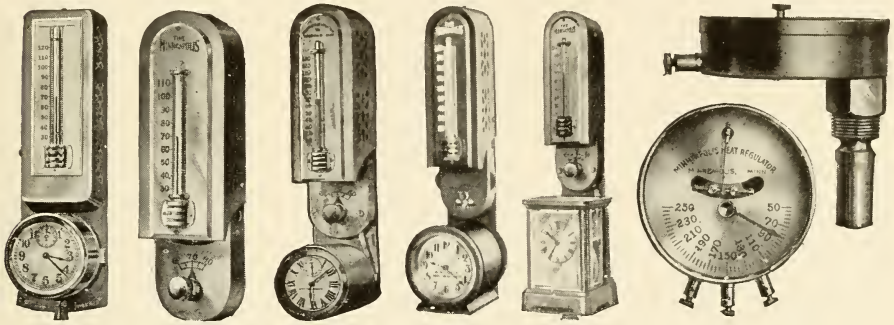


Plate E9411 Plate E9412 Plate E9413 Plate E9414 Plate E9415 Plate E9416

This regulator consists of a thermostat, a motor, and two cells of open circuit battery. The thermostat controls the operation of the whole mechanism of the regulator. Made with and without a time attachment.

The thermostat is protected by an ornamental screen, having upon its face an accurate thermometer, and is finished in bronze. It should be located in the living room at an average temperature point. All other parts of the device are located in the basement. Time attachment consists of a clock mounted in connection with the thermostat and of similar finish.

This arrangement will change point of temperature control at any predetermined hour; for instance, it will hold the temperature at night to 60° and will automatically raise the temperature to 70° at the rising hour. It is not necessary to use the time attachment except when desired.

Model No. 35 is furnished with a clock time attachment. The thermometer is small and inconspicuous and is an ornament to any room. Model No. 35 is furnished only in one design, as shown above; namely, the time attachment with one-day clock. Operated with gravity motor only.

Model No. 40 is the same as No. 47, except that it is without time attachment. Operated with spring motor, direct current or alternating current motor.

Model No. 47 with one-day clock. The clock is hinged in front and swings in a complete circle for winding. It is easily removed. All arbors wind with one key. The thermometer is small and inconspicuous. Operated with spring motor, direct current motor or alternating current motor.

Model No. 55 duplex eight-day thermostat. Will automatically at night lower the temperature to any desired point and at any predetermined hour in the morning, raise same to any desired day temperature. With this model, the device is entirely automatic; the only thing necessary is to wind the clock once a week. Equipped with handsome eight-day clock. Operated with spring motor, D. C. or A. C. motors.

Model No. 60 with eight-day clock of very high grade, both clock and alarm of same running eight days with one winding. The clock has a solid brass case, repeater alarm, jeweled balance, and beveled glass front. The clock swings in a complete circle and does not have to be removed for winding. Operated by spring motor, direct current motor or alternating current motor.

Model No. 65 is the same in electrical construction as the other models. Especially adapted for the control of valves, dampers, etc., for the regulation of hot water tanks, steam, bake ovens, etc. Operated with spring motor, direct current or alternating current motor.

HONEYWELL WATER REGULATORS

No. 3

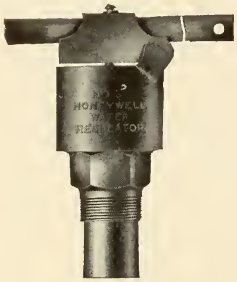


Plate E3421

This is a most simple and positive little instrument for regulating the temperature of water in a hot water heating system or storage tank. It has a temperature range of from 120 to 240 degrees, and will keep the water in the system at any degree between these temperatures. The regulator is designed to be connected directly into top of heater or to flow pipe in such position that the circulating water will flow around the bulb of the regulator. When so connected it will open and close the dampers within a water temperature change of two or three degrees.

There is no rubber diaphragm or short lived parts used in its manufacture. It is fitted with a Sylphon Bellows.

The regulator case and bearings are made especially heavy for the high temperatures attainable, and the lever and chains are strong enough to lift any damper 5 or 6 inches. The regulator is 10 inches in height. The neck is threaded for 1½-inch pipe opening. It measures 5 inches from the bottom of bulb to top of threads and 5 inches from the latter point to top of regulator. With each regulator are furnished chains and pulleys, a lever 3 feet in length and two ball weights. By setting these weights in or out on the lever, any predetermined water temperature may be maintained. The regulator is fitted with frictionless knife edge bronze bearings, which makes it very sensitive to the slightest change in temperature. In the bulb of the regulator is hermetically sealed a quantity of volatile fluid. As the temperature of the water rises the fluid vaporizes and forces up the plunger in the center. The plunger is tapered to a blunt point at the top, and centers in a conical opening in the rocker. As the plunger is forced up it lifts the rocker, to which is fastened the lever. When the temperature of the water drops, the vapor condenses, allowing the plunger and lever to lower. Thus the dampers are opened and closed as the temperature of the water rises and falls a degree or two.

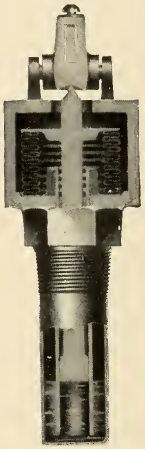


Plate E9422

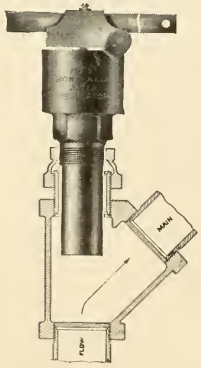


Plate E9423

There are many uses to which the No. 3 water regulator may be put.

When used for controlling the temperature of water in storage tanks where water is heated by a tank heater, the regulator may be connected into one of the tappings on the top of the heater if convenient, and the weights so placed on the lever that any water temperature may be maintained in the tank as long as there is fire in the heater.

In addition to the standard No. 3 device we can furnish the the No. 3 A Honeywell Sylphon Water Regulator which is designed to be used on Ideal Arco Boilers equipped with the special Arco damper control, or on any type boilers having a shallow dome space. The neck is threaded for 2-inch opening instead of 1½ inch and the bulb is much shorter.

Price ..... each **20.00**

EXPANSION TANKS AND BRACKETS

GALVANIZED EXPANSION TANK

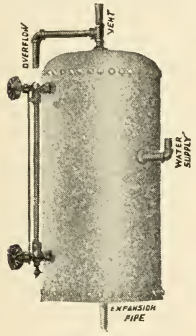


Plate E9431

WITH GAUGE GLASS

Plate E9432

SMITHS' EXPANSION TANKS WITH FLOAT INDICATOR

Plate E9433

GALVANIZED EXPANSION TANKS

Approximate Capacity...gallons	8	10	15	20	24	26
Diameter.....inches	10	12	12	14	14	16
Height..... "	20	20	30	30	36	30
Suitable for Radiation....sq. ft.	250	350	550	700	850	900
Price, Tank only.....each	**7.50**	**8.00**	**9.00**	**12.50**	**13.00**	**14.00**
Approximate Capacity..gallons	32	42	66	82	100	120
Diameter.....inches	16	16	18	20	22	24
Height..... "	36	48	60	60	60	60
Suitable for Radiation....sq. ft.	1250	1750	2750	4500	6000	7500
Price, Tank only.....each	**15.00**	**16.50**	**31.00**	**37.00**	**51.00**	**58.00**

SMITH'S EXPANSION TANKS WITH GAUGE GLASS

Number.....	10	12	15	17	23	40
Length.....inches	12	13	15	17	23	24
Width..... "	8	9	10	10	10	16
Height..... "	24	24	24	24	24	24
Capacity.....gallons	10	12	15	17	23	40
Price, with Gauge.....each	**3.70**	**4.00**	**4.25**	**4.50**	**5.00**	**5.50**

SMITH'S EXPANSION TANKS WITH FLOAT INDICATOR

Number.....	110	112	115	117	123	140
Length.....inches	12	13	15	17	23	24
Width..... "	8	9	10	10	10	16
Height..... "	24	24	24	24	24	24
Capacity.....gallons	10	12	15	17	23	40
Price.....each	**3.70**	**4.00**	**4.25**	**4.50**	**5.00**	**5.50**

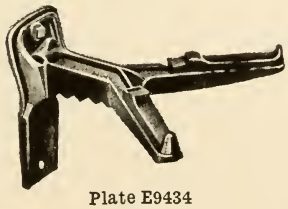


Plate E9434

EXPANSION TANK BRACKETS

Can be adjusted for all sizes of tanks from 10 to 16 inches in diameter. Furnished with necessary screws.

Price, Complete.....each **1.75**

THERMOMETERS, GAUGES, ETC.

THERMOMETERS
STRAIGHT ANGLE

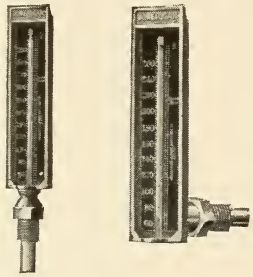


Plate E9441 Plate E9442

ALTITUDE GAUGE

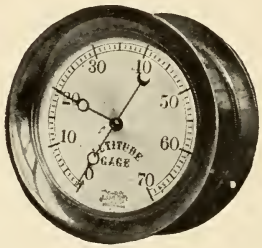


Plate E9443

HOT WATER AND STEAM THERMOMETERS

Price, Straight Stem, Hot Water	each	3.00
" Angle, Hot Water	"	3.50
" Straight Stem, Steam	"	3.25
" Angle, Steam	"	3.75

ALTITUDE GAUGES

Size of Dial	inches	4½	5	5½	6	6¾	8½	10	12
Price, Iron Case, Brass Ring	each	12.00	12.00	14.00	16.00	20.00	30.00	40.00	60.00
" " " N. P.	"	12.20	12.20	14.25	16.50	20.60	30.75	41.00	61.50

LOW PRESSURE DAMPER REGULATORS

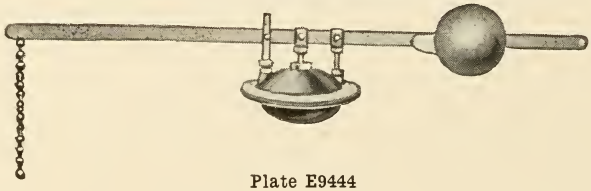


Plate E9444

Diameter of Bowl	inches	8
Price	each	5.00
" Extra Rubber Diaphragms	"	.75

SPUD WRENCHES

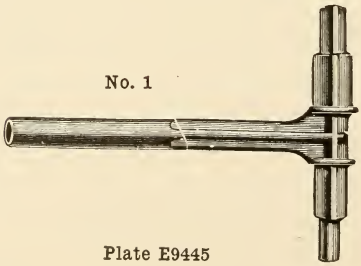


Plate E9445

Plate E9446

Number		1	2
Price, embracing ¾, 1, 1¼ and 1½-inch Sizes	each	.75	.50

* No. 1 Spud Wrench has an open hexagon on end of handle. No. 2 is used with a wrench.

RADIATOR SHIELDS, ETC.

RADIATOR SHIELDS

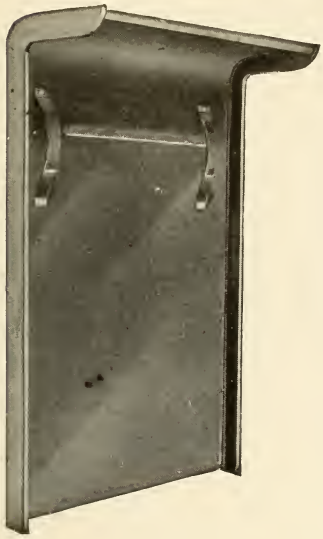


Plate E9451

No. Sections in Radiator 2½-in. Centers	Price Plain Steel	Price Gold, Copper Aluminum, Bronze or Black Iron Fin.	Price Antique Copper Finish	Price Brush Brass Polished Copper or N. P. Fin.
8	4.50	5.50	6.75	12.05
9	4.70	5.80	7.10	12.75
10	4.90	6.10	7.45	13.45
11	5.10	6.40	7.80	14.15
12	5.30	6.70	8.15	14.85
13	5.50	7.00	8.50	15.55
14	5.70	7.30	8.85	16.25
15	5.90	7.60	9.20	16.95
16	6.10	7.90	9.55	17.65
17	6.30	8.20	9.90	18.35
18	6.50	8.50	10.25	19.05
19	6.70	8.80	10.60	19.75
20	6.90	9.10	10.95	20.45
21	7.10	9.40	11.30	21.15
22	7.30	9.70	11.65	21.85
23	7.50	10.00	12.00	22.55
24	7.70	10.30	12.35	23.25
25	9.90	12.10	14.95	29.60
26	10.15	12.45	15.35	30.45
27	10.40	12.80	15.75	31.30
28	10.65	13.15	16.15	32.15
29	10.90	13.50	16.55	33.00
30	11.15	13.85	16.95	33.85

All shields are supplied with special equipment for installing. When radiators are placed more than 3 inches from wall it will be necessary to so advise in order that special equipment for installing may be supplied. Give name of manufacturer.

BUSHING

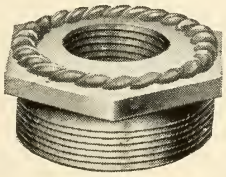


Plate E9452

PLUG

Plate E9453

BUSHINGS

Size.....inches	1x¾	1¼x1	1½x½	1½x¾	1½x1	1½x1¼	2x¾	2x1	2x1¼	2x1½
Price.....each	.09	.11	.14	.14	.14	.14	.21	.21	.21	.21

PLUGS

Size.....inches	¾	1	1¼	1½	2
Price.....each	.06	.08	.10	.14	.20

NIPPLES AND WASHERS

Radiator Nipples.....each .15 Radiator Paper Washers, per dozen .10

RADIATOR BRUSH

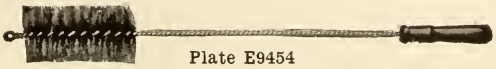


Plate E9454

FITCH BRONZING BRUSH

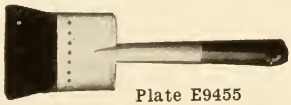


Plate E9455

Price, Radiator Brushes.....each .80
" Fitch Bronzing Brushes, ½, 1, 1½ and 2-inch.....per inch .50

RADIATOR BUSHINGS, ETC.

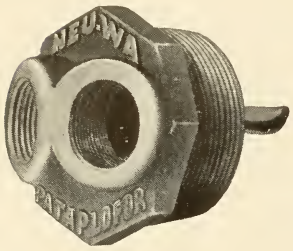


Plate E9461

RADIATOR BUSHINGS

The Neu-Wa Radiator Bushing contains all the desirable features of the one end radiator connection. It is easy to install, can be connected to any size radiator, does away with all piping to opposite ends, and provides a positive circulation of the hot water, the valves and piping being at only one end of radiator. This improves its appearance, simplifies location, and often allows a radiator of larger size to be set in a given space.

Flow and Return Tappings.....inches	½	¾	1
Price .....each	.60	.60	.80

HYDRANT CLAMP

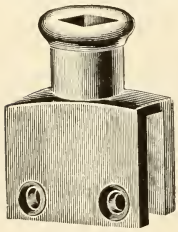


Plate E9462

HYDRANT SOCKET

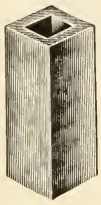


Plate E9463

ROD REST

Plate E9464

STREET WASHER GUIDE AND CHECK

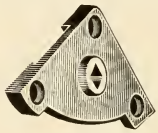


Plate E9465

STREET WASHER KEY

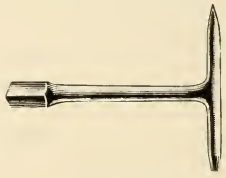


Plate E9466

Price, Hydrant Clamps, Malleable Iron, for Square Rod .....per pound	.15
" " " " " " ⅜-inch Iron Pipe ..... "	.18
" " " " " " ½ " " " ..... "	.20
" " " Brass, for ½ and ⅝-inch Square Rod .....per dozen	2.50
" " " " " ¾ " 1 " " " ..... "	3.50
" " Sockets, Malleable Iron.....per pound	.15
" " " Brass.....per dozen	2.00
" Rod Rests, Cast Iron ..... "	.96
" Street Washer Guides and Checks, Iron .....per pound	.15
" " " Keys, Malleable Iron ..... "	.15

LOAFER CUSHION

Plate E9467

HYDRANT HANDLES

No. 1

Plate E9468

No. 2

Plate E9469

Price, Loafer Cushions, 1, 1¼, 1½ and 2-inch, per Length of 23 inches .....each	.35
" No. 1 Hydrant Handles .....per pound	.20
" " 2 " " ..... "	.15

REGISTERS

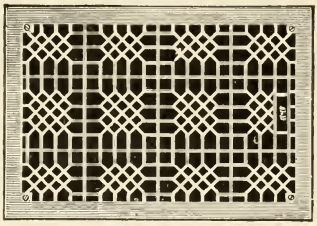


Plate E9471

Black Japanned				Oxidized Copper Plated			White Japanned	
Opening Inches	Price Register Each	Price Register Face Each	Price Floor Border Each	Price Register Each	Price Register Face Each	Price Floor Border Each	Price Register Each	Price Register Face Each
6x 6	1.50	.90	1.15	2.70	2.10	2.35	1.80	1.20
6x 8	1.55	1.00	1.15	2.80	2.25	2.40	1.85	1.30
6x 9	1.60	1.05	1.20	2.95	2.40	2.55	1.90	1.35
6x10	1.60	1.05	1.20	3.00	2.45	2.60	1.95	1.40
6x12	1.85	1.25	1.45	3.50	2.90	3.10	2.25	1.60
7x10	1.65	1.10	1.25	3.10	2.55	2.70	2.00	1.40
8x 8	1.60	1.05	1.20	3.00	2.45	2.60	1.95	1.40
8x10	1.65	1.10	1.25	3.15	2.60	2.75	2.00	1.45
8x12	1.90	1.30	1.50	3.65	3.05	3.25	2.30	1.70
8x15	3.80	2.60	2.60	6.00	4.80	4.80	4.55	3.35
9x12	2.10	1.45	1.65	4.00	3.35	3.55	2.55	1.90
9x14	3.10	2.15	2.15	5.20	4.25	4.25	3.70	2.75
10x12	2.40	1.70	1.75	4.40	3.70	3.75	2.90	2.20
10x14	3.15	2.20	2.20	5.25	4.30	4.30	3.80	2.85
10x16	4.85	2.95	2.95	7.20	5.30	5.30	5.85	3.95
12x15	4.50	2.90	2.90	7.00	5.40	5.40	5.40	3.80
12x16	5.60	3.50	3.50	8.25	6.15	6.15	6.70	4.60
12x17	6.35	3.80	3.80	9.00	6.45	6.45	7.60	5.05
12x18	6.80	3.90	3.90	9.55	6.65	6.65	8.15	5.25
12x19	7.50	4.00	4.00	10.35	6.85	6.85	9.00	5.50
14x18	9.00	4.50	4.50	12.00	7.50	7.50	10.80	6.30
14x20	9.50	4.80	4.80	13.00	8.50	8.50	11.25	6.40
14x22	10.50	5.00	5.00	14.50	9.00	9.00	12.00	6.50
16x20	12.35	6.10	6.10	16.55	10.30	10.30	13.60	7.35

Electro Plated, Brass, Bronze or Nickel

Opening Inches	Price Register Each	Price Register Face Each	Price Floor Border Each	Opening Inches	Price Register Each	Price Register Face Each	Price Floor Border Each
6x 6	3.00	2.40	2.95	10x12	5.50	4.80	5.35
6x 8	3.10	2.50	3.00	10x14	6.55	5.60	6.00
6x 9	3.40	2.85	3.45	10x16	8.60	6.70	7.20
6x10	3.50	2.95	3.60	12x15	8.50	6.90	7.60
6x12	4.20	3.60	4.10	12x16	9.75	7.65	8.25
7x10	3.80	3.25	3.80	12x17	10.60	8.05	8.65
8x 8	3.70	3.15	3.65	12x18	11.25	8.35	9.00
8x10	3.85	3.30	3.90	12x19	12.25	8.75	9.25
8x12	4.40	3.75	4.40	14x18	18.50	12.00	12.15
8x15	7.00	5.80	6.40	14x20	20.50	13.00	12.75
9x12	5.10	4.45	5.00	14x22	22.50	14.50	13.50
9x14	6.50	5.50	5.95	16x20	24.60	16.00	14.00

SECTIONAL PIPE COVERING

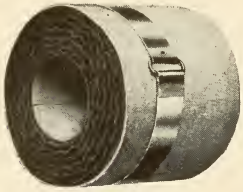


Plate E9481

WOOL FELT

For Low Pressure Steam and Hot Water Heating Systems

Made in sections 3 feet long and manufactured in three styles: "Standard"—Corrugated laminations of wool felt 1 inch thick, with an interlining of two layers of asbestos paper. "Champion" or "Express"—Corrugated laminations of wool felt ¾ inch thick with one layer of asbestos paper. "Aqua" or "C.B." —Solid laminations of wool felt ½ inch thick with one layer of asbestos paper. ½-inch will be shipped, unless otherwise specified.

AIR-CELL

For Medium Steam Pressure and Heating Pipes

A light cellular covering constructed of corrugated asbestos paper, with the channels running lengthwise of the pipe. A well-known covering for medium and low pressure steam and hot water pipes. Made in thicknesses of ½ to 3 inches, to fit all standard sizes of pipe, but carried in stock regularly ¾ and 1 inch thick for all standard sizes of pipe.

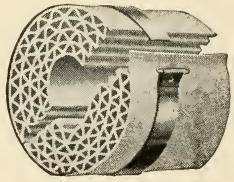


Plate E9482

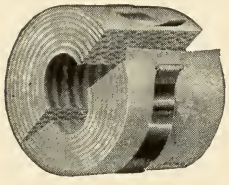


Plate E9483

ASBESTOCEL

For High Steam Pressure Pipes

Asbestocel covering is built on the arch principle, the channels running around the pipe instead of lengthwise. This prevents the circulation of air, which is the great objection to ordinary longitudinal air cell coverings. It will not crush down nor lose its strength, and successfully withstands vibration and hard usage. There is no loss by breakage in transportation or application. Made in thicknesses of ½ to 3 inches, to fit standard sizes of pipe.

85 PER CENT MAGNESIA

For High Pressure and Superheated Steam Pipes

This well-known form of high pressure pipe covering combines the high non-conducting qualities of carbonate of magnesia and asbestos in a light, highly efficient insulation. It is recommended for high pressure and superheated steam surfaces. This covering is furnished in various thicknesses from 1 to 3 inches, sectional form, to fit standard pipes ½ to 14 inches; for larger pipes, curved segments or blocks are supplied.

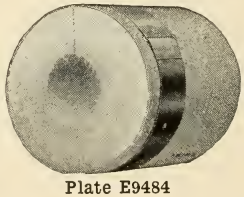


Plate E9484

STANDARD LIST FOR ALL STYLES—WITH BRASS-LACQUERED BANDS

Inside Diameter of Pipe ....inches	½	¾	1	1¼	1½	2	2½	3	3½
Price, Covering.....per foot	.22	.24	.27	.30	.33	.36	.40	.45	.50
" Elbow Covers.....each	.30	.30	.30	.30	.30	.36	.42	.48	.54
" Tee " ..... "	.36	.36	.36	.36	.36	.42	.48	.54	.60
" Cross " ..... "	.48	.48	.48	.48	.48	.54	.60	.70	.80
" Valve " ..... "	.54	.54	.54	.54	.54	.60	.78	.96	1.20

Inside Diameter of Pipe ....inches	4	4½	5	6	7	8	9	10	12
Price, Covering .....per foot	.60	.65	.70	.80	1.00	1.10	1.20	1.30	1.85
" Elbow Covers.....each	.60	.72	.90	1.30	1.80	2.40	3.00	3.60	....
" Tee " ..... "	.75	.90	1.20	1.60	2.20	3.00	3.80	4.60	....
" Cross " ..... "	.95	1.10	1.50	2.00	2.80	3.60	4.40	5.20	....
" Valve " ..... "	1.50	1.85	2.25	2.80	3.60	4.40	5.30	6.20	....

Outside Diameter of Pipe ...inches	14	16	18	20	24	30	....	....	....
Price, Covering .....per foot	2.10	2.35	2.60	2.85	3.30	4.00	....	....	....

ASBESTOS CEMENT, MILL-BOARD, ETC.

ASBESTOS CEMENT

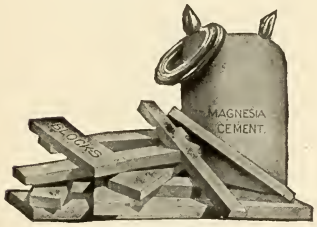


Plate E9491

ASBESTOS MILL-BOARD

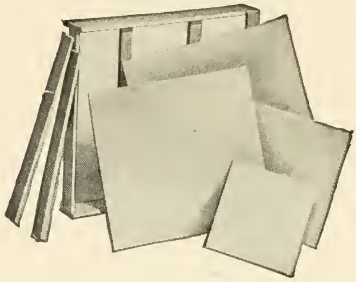


Plate E9492

ASBESTOS CEMENT

Asbestos Cement, 100-pound Bags ..... per bag **2.50**

A bag of cement will cover surfaces as follows:
Asbestos cement, 22 square feet, 1 inch thick.

MINERAL WOOL

Price, in Sacks, Weighing about 50 pounds ..... per pound .05
" " Bulk ..... per ton 25.00
" Sacks, Extra ..... each .12

The amount charged for sacks will be refunded on their return, freight charges prepaid. Mineral wool weighs from 12 to 15 pounds per cubic foot.

ASBESTOS MILL-BOARD

SHEETS 40 X 40 INCHES

Thickness ..... inches	1/16	1/8	3/16	1/4
Weight, per Sheet ..... pounds	4	8	12	16
Price ..... per pound	.25			

Cases weigh about 350 pounds.

ASBESTOS BUILDING FELT

36 INCHES WIDE

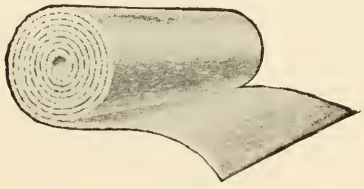


Plate E9493

Grade	Thin	Medium	Heavy
Weight, per 100 Square Feet ..... pounds	about 6	about 10	about 14
Square Feet ..... per roll	1300 to 1600	800 to 1000	500 to 700
Price, Full Rolls ..... per pound	.20	.20	.20
" Broken Rolls ..... "	.25	.25	.25

RADIATOR BRONZES, ETC.

BRONZE POWDER

Plate E9501

RADIATOR ENAMEL

Plate E9502

BRONZE POWDER

Price, Aluminum Bronze Powder in 1-pound Cans.....per pound 2.30
" " " " " ½ " " ..... " 2.50
" Gold Bronze Powder in 1-pound Cans..... " 1.30
Other colors: Gold, copper and silver, in pound cans.

BRONZING LIQUID—(Not Illustrated)

1 pound of bronze (except aluminum) covers about 300 square feet of radiation; 1 pound of aluminum powder covers about 600 square feet of radiation. 1 quart of liquid is required for each pound of bronze powder, except in the case of aluminum, for which the proportion is about 1 gallon of liquid to 1 pound of the powder.

Price, in gallon Cans.....per can 1.70
" " ½-gallon Cans..... " .95

RADIATOR ENAMEL

For artistically decorating the radiators in any shade; in gallon, ½-gallon and quart cans.

Price, Any Color (except White).....per gallon 3.00
" White..... " 4.00

MAROON JAPAN

Plate E9503

BLACK ASPHALTUM VARNISH

Plate E9504

MAROON JAPAN

One coat is sufficient for radiator work; has high gloss, quite equal to enamel.

Price, in gallon Cans.....per can 1.90
" " ½-gallon Cans..... " 1.10
" " quart Cans..... " .65

BLACK ASPHALTUM VARNISH

For painting boilers and risers. Put up in gallon and ½-gallon cans and in barrels of 30 gallons.

Price, in gallon Cans.....per can 1.50
" " ½-gallon Cans..... " .85

STANDARD BRASS GLOBE AND ANGLE VALVES

The valves shown on this page are full size and weight standard valves and must not be confused with the competition or No. 2 brass valves. Made from a high-grade steam metal, each disc being ground to fit its own body, carefully finished and tested, suitable for 125-pound working pressure. Furnished with iron wheel or brass wheel as listed.

GLOBE VALVE

Plate E9511

ANGLE VALVE

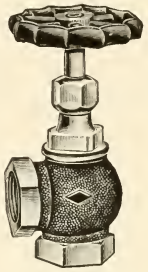


Plate E9512

GLOBE VALVES

Size ... inches	1/8	1/4	3/8	1/2	3/4	1
Price, Iron Wheel ... each	.72	.72	.77	1.00	1.26	1.80
" Brass Wheel, Finished All Over ... ea.	....	2.75	3.00	3.15	3.50	4.25
" " " Fin. & N.P. All Over. ea.	....	3.25	3.50	3.70	4.10	4.90
Size ... inches	1 1/4	1 1/2	2	2 1/2	3	..
Price, Iron Wheel ... ea.	2.52	3.50	5.30	10.00	14.40	....
" Brass Wheel, Finished All Over ... "	5.60	7.00	10.25	.....	.....	....
" " " Fin. & N.P. All Over. "	6.30	7.75	11.25	.....	.....	....

ANGLE VALVES

Size ... inches	1/8	1/4	3/8	1/2	3/4	1
Price, Iron Wheel ... ea.	.72	.72	.77	1.00	1.26	1.80
" Brass Wheel, Finished All Over ... "	....	2.75	3.00	3.15	3.50	4.25
" " " Fin. & N.P. All Over. "	....	3.25	3.50	3.70	4.10	4.90
Size ... inches	1 1/4	1 1/2	2	2 1/2	3	..
Price, Iron Wheel ... ea.	2.52	3.50	5.30	10.00	14.40	....
" Brass Wheel, Finished All Over ... "	5.60	7.00	10.25	.....	.....	....
" " " Fin. & N.P. All Over. "	6.30	7.75	11.25	.....	.....	....

COMBINATION ANGLE—CHECK VALVES

Plate E9513

This is either a positive shut-off valve when handle is screwed down, or it is a check valve when handle is unscrewed.

Size ... inches	3/8	1/2	3/4
Price, Iron Wheel ... each	1.75	2.25	3.00

STANDARD BRASS CHECK VALVES

The valves shown on this page are full size standard valves and must not be confused with the competition or No. 2 brass valves. Made from a high-grade steam metal, each disc being ground to fit its own body; carefully finished and tested, suitable for 125 pounds working pressure.

HORIZONTAL

Plate E9521

HORIZONTAL WITH DRIP

Plate E9522

HORIZONTAL

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price.....each	.65	.65	.70	.90	1.15	1.60	2.25	3.15	4.75	9.00	13.00

HORIZONTAL WITH DRIP

Size.....inches	1/2	3/4	1	1 1/4	1 1/2
Price.....each	2.15	2.55	3.15	4.05	5.40

ANGLE

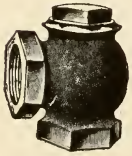


Plate E9523

VERTICAL

Plate E9524

ANGLE

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price.....each	.77	1.00	1.26	1.80	2.52	3.50	5.30

VERTICAL

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2
Price.....each	1.00	1.26	1.80	2.52	3.50	5.30

DIAMOND BRASS VALVES

WITH JENKINS DISC

GLOBE ANGLE CHECK

These are High Grade Valves, suitable for 125 pounds pressure, made of the best quality of Steam Metal. They are heavy and well made in every particular, special care being taken to produce valves which will give satisfactory service. Jenkins Bros. Discs fit these valves.

J. D. GLOBE VALVE

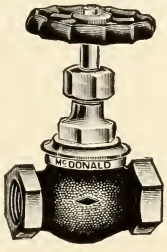


Plate E9531

J. D. ANGLE VALVE

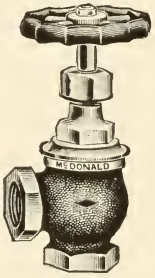


Plate E9532

GLOBE AND ANGLE

Size .....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price.....each	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75

J. D. HORIZONTAL CHECK VALVE

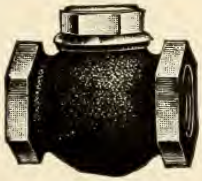


Plate E9533

J. D. ANGLE CHECK VALVE

Plate E9534

HORIZONTAL OR ANGLE

Size .....inches	3/4	3/8	1/2	3/4
Price.....each	1.10	1.20	1.30	1.90
Size .....inches	1	1 1/4	1 1/2	2
Price.....each	2.60	3.60	5.00	7.50

STANDARD BRASS CHECK AND CROSS VALVES

BRASS CHECK VALVES

BALL

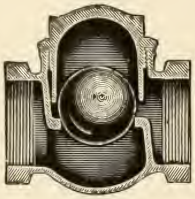


Plate E9541

SWING

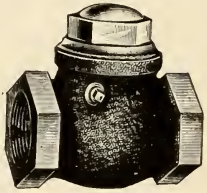


Plate E9542

Size ..... inches	⅜	½	¾	1	1¼
Price, Ball Check ..... each	....	1.60	2.30	3.10	4.00
" Swing Check ..... "	1.30	2.00	2.25	2.80	3.65
Size ..... inches	1½	2	2½	3	....
Price, Ball Check ..... each	6.20	9.40	....	....	....
" Swing Check ..... "	4.75	6.75	15.00	24.00	....

BRASS CROSS VALVES

STANDARD

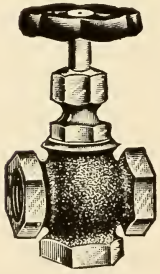


Plate E9543

WITH JENKINS DISC

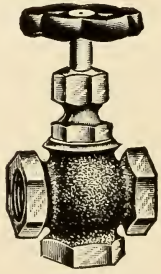


Plate E9544

Size ..... inches	¼	⅜	½	¾	1
Price, Standard ..... each	1.25	1.25	1.50	2.00	2.50
" with Jenkins Disc ..... "	1.70	2.00	2.25	2.50	3.25
Size ..... inches	1¼	1½	2	2½	3
Price, Standard ..... each	3.50	5.00	8.00	16.00	24.00
" with Jenkins Disc ..... "	4.75	6.25	9.50	20.00	27.50

JENKINS BROS. BRASS VALVES

GLOBE SCREWED

Plate E9551

GLOBE FLANGED

Plate E9552

ANGLE SCREWED

Plate E9553

CROSS SCREWED

Plate E9554

STANDARD PATTERN—For 150 Pounds Pressure

Size.....inches	1/8	1/4	3/8	1/2	3/4	1
Price, Globe or Angle, Screwed.....each	1.10	1.10	1.25	1.60	2.20	2.80
" " " " Flanged..... "	....	3.50	4.00	4.00	5.00	6.00
" Cross, Screwed..... "	....	1.70	2.00	2.25	2.50	3.25
" " Flanged..... "	....	....	....	7.00	8.00	9.00

Size.....inches	1 1/4	1 1/2	2	2 1/2	3	....
Price, Globe or Angle, Screwed.....each	4.00	5.50	8.75	15.75	22.00	....
" " " " Flanged..... "	9.00	11.00	16.50	25.00	34.00	....
" Cross, Screwed..... "	4.75	6.25	9.50	20.00	27.50	....
" " Flanged..... "	12.00	15.00	23.00	33.00	44.00	....

EXTRA HEAVY PATTERN, GLOBE OR ANGLE—For 300 Pounds Pressure

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Screwed..each	3.00	3.50	4.00	5.00	6.50	8.25	11.00	16.00	33.00	45.00
" Flanged.. "	....	....	6.00	7.50	10.00	13.00	17.00	24.00	43.00	57.00

JENKINS DISCS

OLD STYLE

Plate E9555

NEW STYLE

Plate E9556

STEAM METAL

Plate E9557

STANDARD—For 150 Pounds Pressure

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2
Price.....each	.03	.04	.04	.05	.06	.09	.12	.18	.24	.40	.50	.60	.70

Size.....inches	5	6	7	8	9	10	12	14	16	18	20	22	24
Price.....each	.80	1.00	1.20	1.40	1.80	2.25	2.50	3.50	4.00	5.00	6.00	7.50	9.00

STEAM METAL DISCS—For Extreme Pressure

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price.....each	.14	.14	.16	.20	.22	.28	.30	.34	.60	.85	1.35

Size.....inches	4	4 1/2	5	6	7	8	9	10	12	14	....
Price.....each	1.60	2.00	2.30	2.60	3.70	4.00	5.25	5.60	7.30	9.80	....

JENKINS BROS. BRASS CHECK VALVES

Standard Pattern, for 150 Pounds Pressure

HORIZONTAL SCREWED

Plate E9561

HORIZONTAL FLANGED

Plate E9562

ANGLE SCREWED

Plate E9563

STANDARD PATTERN, HORIZONTAL, ANGLE OR VERTICAL—SCREWED

Size .inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price..each	1.10	1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50	14.00	21.00

STANDARD PATTERN, HORIZONTAL, ANGLE OR VERTICAL—FLANGED

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price.....each	4.00	5.00	6.00	8.00	10.00	15.00	23.00	32.00

EXTRA HEAVY PATTERN, HORIZONTAL OR ANGLE

For 300 Pounds Pressure

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Screwed .....each	3.00	3.50	4.50	5.50	7.75	11.50	21.00	30.00
" Flanged ..... "	5.00	6.50	8.50	10.50	14.25	20.00	31.00	42.00

SWING CHECK VALVES

NEW STYLE STANDARD PATTERN

SCREWED

Plate E9564

FLANGED

Plate E9565

EXTRA HEAVY SCREWED

Plate E9566

NEW STYLE STANDARD PATTERN—SCREWED

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price.....each	1.20	1.30	1.90	2.60	3.60	5.00	7.50	14.00	21.00

NEW STYLE STANDARD PATTERN—FLANGED

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price.....each	4.00	5.00	6.00	8.00	10.00	15.00	23.00	32.00

EXTRA HEAVY PATTERN

For 300 Pounds Pressure

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Screwed.....each	3.00	3.50	4.50	5.50	7.75	11.50	21.00	30.00
" Flanged ..... "	5.00	6.50	8.50	10.50	14.25	20.00	31.00	42.00

BRASS GATE VALVES

RISING STEM
DOUBLE GATE

Plate E9571

QUICK OPENING
THROTTLE

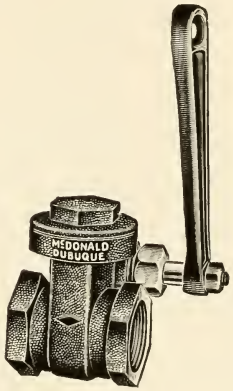


Plate E9572

DOUBLE GATE, RISING STEM

These are High-grade, Double Gate, Brass Valves, with Rising Stem, full weight and made of the best of Steam Metal. They are constructed with parallel seats, and the bearing of the wedge being central, it acts uniformly on all parts of the discs, and as a result the discs are forced to their seats and have an equal bearing at all parts.

They are carefully made, thoroughly tested and will not leak. The stuffing box is extra deep and holds a liberal amount of packing to prevent leakage around the stem.

Suitable for use on steam and water pipes with 125 pounds working pressure.

Size.....inches	¼	⅜	½	¾	1
Price.....each	**1.45**	**1.45**	**1.65**	**2.05**	**2.80**

Size.....inches	1¼	1½	2	2½	3
Price.....each	**3.70**	**5.00**	**7.30**	**13.00**	**19.00**

QUICK OPENING THROTTLE VALVES

DOUBLE WEDGE GATE

These are High-grade, Double Wedge Gate Brass Valves, Quick Opening. They are full weight and made of the best grade of Steam Metal. The Double Gates are so guided by the body that they will not bind or stick. They are carefully made and thoroughly tested and will not leak.

Quick Opening Gate or Throttle Valves are very convenient in many places where steam or water is to be turned off and on quickly.

Suitable for 125 pounds working pressure.

Size.....inches	¾	1	1¼	1½	2	2½	3
Price.....each	**3.60**	**4.80**	**6.20**	**8.50**	**11.80**	**20.25**	**30.00**

JENKINS BROS. BRASS VALVES

GATE VALVES

STANDARD

Plate E9581

MEDIUM

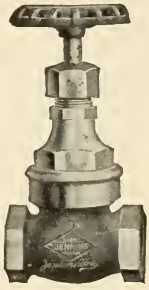


Plate E9582

EXTRA HEAVY

Plate E9583

STANDARD—For 125 Pounds Working Pressure and 175 Pounds Water Pressure

Size.....inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Screwed.....each	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00
" Flanged ..... "	.....	.....	.....	9.00	10.25	12.00	15.00	25.00	33.00	39.00

MEDIUM PRESSURE—For 175 Pounds Working Pressure

Size.....inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Screwed.....each	2.35	2.35	2.75	3.25	4.50	6.00	8.00	13.00	20.00	32.50
" Flanged..... "	....	....	....	10.25	12.50	16.25	21.50	31.00	45.00	67.50

EXTRA HEAVY—For 250 Pounds Working Pressure

Size .....inches	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Screwed .....each	4.00	5.00	6.00	8.00	11.25	16.50	23.00	40.00	65.00
" Flanged ..... "	.....	.....	13.00	16.00	21.50	30.00	41.00	65.00	100.00

QUICK-OPENING GLOBE AND ANGLE VALVES

GLOBE

Plate E9584

These valves are made from the same patterns, and are similar in design to the regular Jenkins Bros. Globe and Angle Valves, with the exception that the spindles and bonnets are quadruple-threaded, with a coarse pitch, which enables the valves to be opened full with about a quarter the usual number of turns. Can be furnished with handwheels if desired. Specially designed for laundry purposes, and are particularly serviceable in hat factories for press and other work requiring a quick-opening valve.

ANGLE

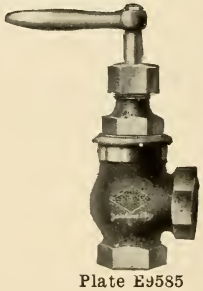


Plate E9585

STANDARD PATTERN—For 150 Pounds Working Pressure

Size.....inches	½	¾	1	1¼	1½	2
Price, Globe or Angle.....each	2.30	2.90	3.50	4.30	6.40	8.40

EXTRA HEAVY PATTERN—For 250 Pounds Working Pressure

Size.....inches	½	¾	1	1¼	1½	2
Price, Globe or Angle.....each	4.30	5.00	6.50	7.80	10.20	14.00

In ordering, specify whether for cold water or steam. For cold water a soft disc is furnished.

BUTTERFLY AND THROTTLE VALVES

STANDARD

BUTTERFLY

BRASS

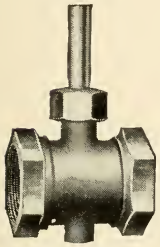


Plate E9591

IRON BODY

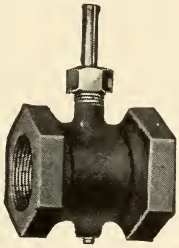


Plate E9592

THROTTLE

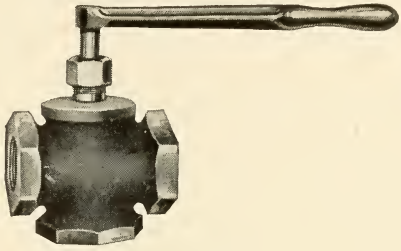


Plate E9593

BUTTERFLY

Size.....inches	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Price, Brass, Scrd.....each	3.10	4.40	5.65	6.75	10.00	13.75	21.00	.....	.....	.....	.....
" Iron Body Scrd.. "	....	....	....	....	8.00	9.50	12.00	16.00	18.50	28.50	42.50
" " " Flgd.. "	....	....	....	....	9.50	11.50	15.00	19.00	22.00	32.00	47.00

THROTTLE

Size .....inches	¾	1	1¼	1½	2	2½	3	3½	4
Price, Brass, Scrd....each	10.00	11.50	14.00	20.00	25.00	35.00	.....	.....	.....
" Iron Body Scrd.. "	.....	.....	.....	.....	.....	30.00	40.00	50.00	60.00

QUICK OPENING GATE

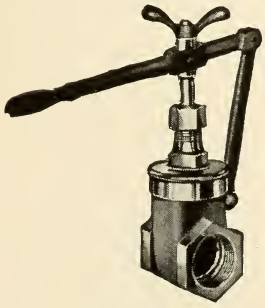


Plate E9594

HOSE GATE

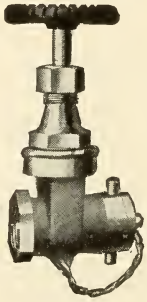


Plate E9595

QUICK-OPENING GATES

Size.....inches	¾	1	1¼	1½	2	2½	3
Price .....each	3.60	4.80	6.20	8.50	11.80	20.25	30.00

HOSE GATES, WITH IRON WHEEL

Size.....inches	1	1¼	1½	2	2½	3
Price, Rough Body, without Cap or Chain.....each	3.35	4.70	6.25	9.00	15.00	22.00
" " " with " and " ..... "	5.10	6.70	8.85	12.60	20.00	29.50

HOSE GATES, WITH FINISHED BRASS WHEEL

Size.....inches	1	1¼	1½	2	2½	3
Price, Finished, without Cap or Chain.....each	6.90	9.10	11.85	17.30	26.00	38.00
" " with " and " ..... "	8.65	11.10	14.45	20.90	31.00	45.50

Hose valves have standard iron pipe thread on female end and hose thread on male end. When ordering, send sample hose thread.

STANDARD IRON BODY VALVES

WITH BRASS DISC
BRASS MOUNTED

For Steam working Pressures up to 125 Pounds

GLOBE

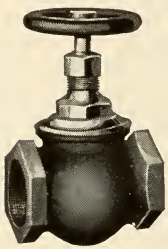


Plate E9601

ANGLE

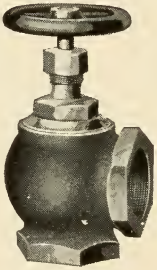


Plate E9602

Size ..... inches	2	2½	3
Price, Globe or Angle, Screwed ..... each	5.40	7.35	9.80
" " " " Flanged ..... "	7.00	9.00	12.50
" Cross, Screwed ..... "	6.50	9.00	12.50
" " Flanged ..... "	9.00	11.75	16.50

WITH YOKE

GLOBE

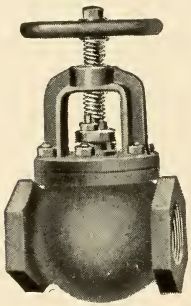


Plate E9603

ANGLE

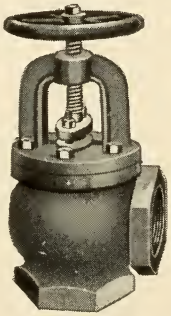


Plate E9604

CROSS

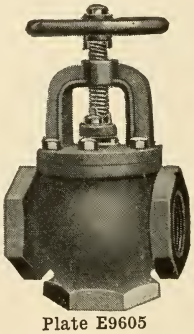


Plate E9605

Size ..... inches	2	2½	3	3½	4	4½	5	6
Price, Globe or Angle, Screwed. each	7.00	9.00	12.50	15.25	19.00	24.00	27.00	37.50
" " " " Flanged. "	8.60	10.75	15.00	18.50	22.50	27.50	31.00	42.00
" Cross, Screwed ..... "	....	.....	16.25	20.00	23.50	30.65	35.25	47.25
" " Flanged ..... "	....	.....	20.00	25.00	28.50	36.00	41.00	54.00

Size ..... inches	7	8	10	12	14	15	16	.....
Price, Globe or Angle, Screwed. each	63.00	72.00	114.00	170.00	.....	.....	.....	.....
" " " " Flanged. "	68.00	77.00	123.00	187.00	350.00	.....	475.00	.....
" Cross, Screwed ..... "	78.00	92.00	162.00	240.00	.....	.....	.....	.....
" " Flanged ..... "	85.00	100.00	175.00	265.00	.....	.....	.....	.....

STANDARD IRON BODY VALVES

WITH JENKINS DISC

BRASS MOUNTED

For Steam Working Pressures up to 125 Pounds

GLOBE

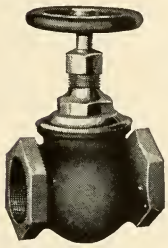


Plate E9611

ANGLE

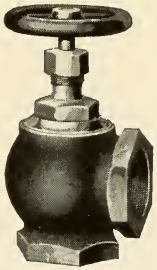


Plate E9612

Size.....inches	2	2½	3
Price, Globe or Angle, Screwed.....each	7.25	11.00	16.00
" " " " Flanged..... "	8.50	13.00	18.00

WITH YOKE

GLOBE

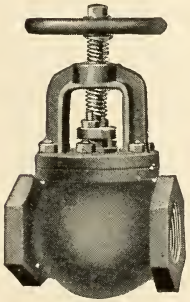


Plate E9613

ANGLE

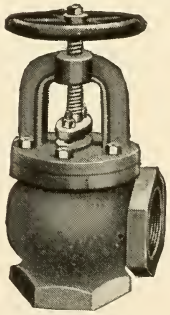


Plate E9614

Size.....inches	2½	3	3½	4	4½	5
Diameter of Flanges..... "	7	7½	8½	9	9¼	10
Price, Globe or Angle, Screwed.....each	12.00	16.75	19.50	24.00	32.00	40.00
" " " " Flanged..... "	14.00	18.50	21.50	26.00	34.00	42.00
Size.....inches	6	7	8	10	12	....
Diameter of Flanges..... "	11	12½	13½	16	19	....
Price, Globe or Angle, Screwed.....each	48.00	80.00	90.00	130.00	185.00	....
" " " " Flanged..... "	50.00	80.00	90.00	130.00	185.00	....

STANDARD IRON BODY CHECK VALVES

For Working Pressures up to 125 Pounds

SCREWED

HORIZONTAL

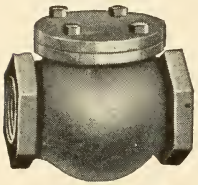


Plate E9621

VERTICAL

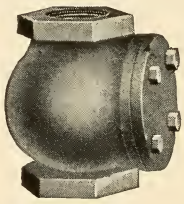


Plate E9622

SWING

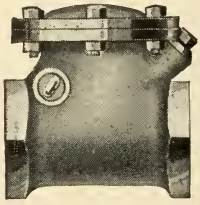


Plate E9623

Size.....inches	2	2½	3	3½	4	4½	5	6	7	8	10	12
Price, Horizontal. each	3.60	6.50	8.90	12.25	14.25	19.00	22.00	30.00	.....	.....	.....	.....
" Vertical.. "	.....	9.50	12.50	17.00	21.00	30.00	33.00	40.00	.....	.....	.....	.....
" Swing.. "	.....	12.00	13.50	17.50	20.00	26.00	30.00	36.00	55.00	70.00	110.00	160.00

FLANGED

HORIZONTAL

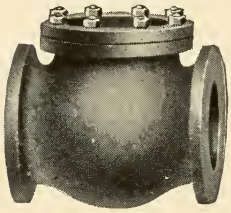


Plate E9624

VERTICAL

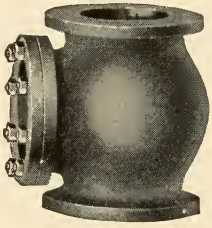


Plate E9625

SWING

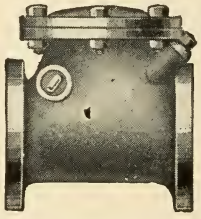


Plate E9626

HORIZONTAL

Size.....inches	3	4	5	6	7	8	10	12	14	15
Diameter of Flanges, inches	7½	9	10	11	12½	13½	16	19	21	22¼
Price.....each	11.50	18.00	26.00	35.00	50.00	62.00	115.00	175.00	300.00	.....

VERTICAL

Size.....inches	6	7	8	10
Diameter of Flanges.....inches	11	12½	13½	16
Price.....each	45.00	67.00	78.00	135.00

SWING

Size.....inches	2½	3	3½	4	4½	5	6	7	8
Diameter of Flanges....inches	7	7½	8½	9	9¼	10	11	12½	13½
Price, Flanged....each	14.50	17.00	21.00	24.00	30.00	34.00	41.00	60.00	75.00
" Hub End... "	.....	19.00	.....	27.00	.....	38.00	45.00	.....	82.50

Size.....inches	10	12	14	15	16	18	20	24	30
Diameter of Flanges....inches	16	19	21	22¼	23½	25	27½	32	38¾
Price, Flanged....each	115.00	168.00	340.00	400.00	450.00	600.00	700.00	1000.00	1650.00
" Hub End.. "	125.00	185.00	340.00	.....	450.00	600.00	700.00	1000.00	1650.00

EXTRA HEAVY IRON BODY GLOBE AND ANGLE VALVES

WITH YOKE AND HARD METAL SEATS

For 250 Pounds Working Pressure

Tested to 800 Pounds Hydraulic Pressure

GLOBE VALVE, FLANGED

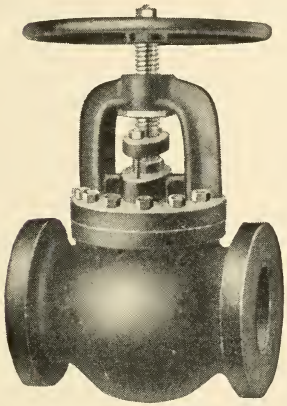


Plate E9631

ANGLE VALVE, FLANGED

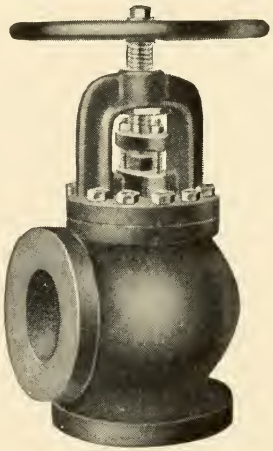


Plate E9632

Size.....inches	2	2½	3	3½	4	4½	5
End to End Globe Valve, Sc'd. "	9½	10¾	11¾	12¼	13	14	15
Face " Face " " Flg'd "	10½	11½	12½	13¼	14	15	15¾
Center to End Angle Valve, Sc'd "	4¾	5⅜	5⅞	6⅛	6½	7	7½
" " Face " " Flg'd. "	5¼	5¾	6¼	6⅝	7	7½	7⅞
Diameter of Flanges..... "	6½	7½	8¼	9	10	10½	11
Price, Screwed.....each	**26.00**	**33.00**	**37.00**	**42.00**	**46.00**	**56.00**	**61.00**
" Flanged..... "	**27.50**	**35.00**	**40.00**	**45.00**	**50.00**	**60.00**	**65.00**

Size.....inches		7	8	10	12	14	15
" of By-pass..... "	....	....	1½	1½	2	2	2
End to End Globe Valve, Sc'd. "	16½	18¼	20	23¼	....	....	....
Face " Face " " Flg'd "	17½	19¼	21	24½	28	33	33
Center to End Angle Valve, Sc'd "	8¼	9⅛	10	11⅝	....	....	....
" " Face " " Flg'd "	8¾	9⅝	10½	12¼	14	16½	16½
Diameter of Flanges..... "	12½	14	15	17½	20½	23	24½
Price, Screwed.....each	**75.00**	**95.00**	**114.00**	**190.00**	....	....	....
" Flanged..... "	**80.00**	**100.00**	**120.00**	**200.00**	**300.00**	**400.00**	**400.00**
" with By-pass..... "	....	....	**150.00**	**250.00**	**350.00**	**450.00**	**450.00**

We do not recommend the use of screwed valves larger than 6 inches. The by-pass on the globe valve is located on the right hand side looking at the inlet end, that is, the end with the passage under the disc. On the angle valves it is located on the back, opposite the outlet.

It is desirable that all valves, 8-inch and larger, should have a by-pass.

JENKINS BROS. IRON BODY VALVES

BRASS MOUNTED

Standard Pattern, for 125 Pounds Working Steam Pressure, or 175 Pounds Working Water Pressure

GLOBE, SCREWED

Plate E9641

GLOBE, FLANGED

Plate E9642

ANGLE, SCREWED

Plate E9643

Size.....inches	½	¾	1	1¼	1½	2	2½	3
Price, Globe or Angle, Screwed.....each	2.80	2.80	3.00	4.00	5.00	7.25	11.00	16.00
" " " " Flanged..... "	3.80	3.80	4.40	5.40	6.60	8.50	13.00	18.00

WITH YOKE

For 150 Pounds Working Steam Pressure, or 250 Pounds Working Water Pressure

GLOBE

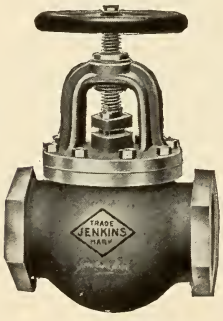


Plate E9644

ANGLE

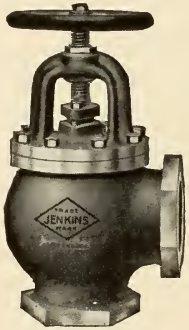


Plate E9645

CROSS

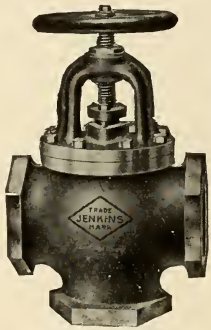


Plate E9646

SCREWED

Size.....inches	2	2½	3	3½	4	4½	5
Price, Globe.....each	10.00	12.00	16.75	19.50	24.00	32.00	40.00
" Angle..... "	10.00	12.00	16.75	19.50	24.00	32.00	40.00
" Cross..... "	.....	16.00	21.00	26.00	30.00	42.00	45.00

Size.....inches	6	7	8	9	10	12	.....
Price, Globe.....each	48.00	80.00	90.00	121.00	130.00	185.00	.....
" Angle..... "	48.00	80.00	90.00	121.00	130.00	185.00	.....
" Cross..... "	58.00	90.00	100.00	.....	.....	.....	.....

FLANGED

Size.....inches	2	2½	3	3½	4	4½	5	6	7
Price, Globe or Angle, each	11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00
" Cross..... "	.....	19.00	24.00	29.00	33.00	45.00	48.00	62.00	90.00

Size.....inches	8	9	10	12	14	16	18	20	24
Price, Globe or Angle, each	90.00	121.00	130.00	185.00	334.00	400.00	540.00	620.00	1260.00
" Cross..... "	100.00	.....	.....	.....	.....	.....	.....	.....	.....

JENKINS BROS. IRON BODY VALVES

BRASS MOUNTED
EXTRA HEAVY PATTERN

For 250 Pounds Working Steam Pressure or 400 Pounds Working Water Pressure

GLOBE SCREWED

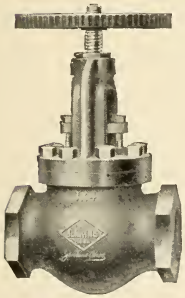


Plate E9651

ANGLE SCREWED

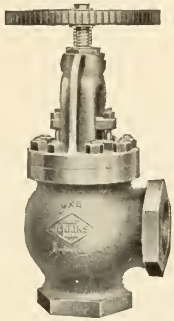


Plate E9652

GLOBE FLANGED

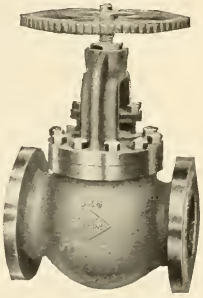


Plate E9653

In their design, strength and rigidity have been carefully considered, and they will easily withstand the strains and stresses due to the expansion and contraction of the piping, or from other causes, and the workmanship is unsurpassed. Before leaving the factory, each valve is carefully tested to 800 pounds hydraulic pressure.

Size ..... inches	2	2½	3	3½	4	4½	5
Price, Globe or Angle, Screwed .... each	16.00	19.00	24.00	28.00	38.00	44.00	53.00
" " " " Flanged .... "	18.00	21.00	26.00	30.00	40.00	46.00	55.00
" Cross, Screwed ..... "	.....	40.00	45.00	50.00	55.00	70.00	75.00
" " Flanged ..... "	.....	43.00	50.00	55.00	60.00	75.00	80.00

Size ..... inches	6	7	8	9	10	12	.....
Price, Globe or Angle, Screwed .... each	70.00	100.00	110.00	165.00	180.00	230.00	.....
" " " " Flanged .... "	73.00	100.00	110.00	165.00	180.00	230.00	.....
" Cross, Screwed ..... "	95.00	120.00	145.00	.....	.....	.....	.....
" " Flanged ..... "	100.00	125.00	150.00	.....	.....	.....	.....

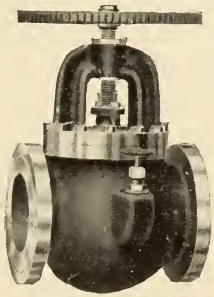


Plate E9654

WITH BY-PASS—GLOBE OR ANGLE SCREWED

Size ... inches	5	6	7	8	9	10	12
Size, By-Pass, inches	1	1¼	1¼	1½	1½	1½	*2
Price .... each	80.00	110.00	125.00	145.00	215.00	230.00	300.00

FLANGED

Size ... inches	5	6	7	8	9	10	12
Size, By-Pass, inches	1	1¼	1¼	1½	1½	1½	*2
Price .... each	80.00	110.00	125.00	145.00	215.00	230.00	300.00

*The by-pass on the 12-inch size has bolted iron yoke top. Other sizes have a brass bonnet same as used on the extra heavy brass globe valves.

JENKINS BROS. IRON BODY CHECK VALVES

HORIZONTAL, ANGLE AND VERTICAL

HORIZONTAL SCREWED

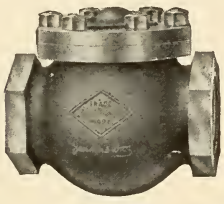


Plate E9661

ANGLE SCREWED

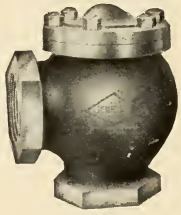


Plate E9662

STANDARD PATTERN

For 150 Pounds Working Pressure

Size.....inches	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Flanges....inches	6	7	7½	8½	9	9¼	10	11	12½	13½
Price, Screwed.....each	8.00	11.00	14.00	17.00	20.00	25.00	30.00	40.00	65.00	80.00
" Flanged..... "	10.00	13.00	16.50	20.00	23.00	28.00	33.00	43.00	65.00	80.00

EXTRA HEAVY PATTERN

For 250 Pounds Working Pressure, Horizontal or Angle

Size.....inches	2	2½	3	3½	4	4½	5	6
Diameter of Flanges.....inches	6½	7½	8¼	9	10	10½	11	12½
Price, Screwed.....each	15.00	17.00	21.00	26.00	34.00	38.00	46.00	65.00
" Flanged..... "	16.00	19.00	23.00	28.00	36.00	40.00	48.00	67.00

SWING

STANDARD SCREWED

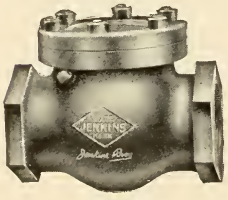


Plate E9663

STANDARD FLANGED

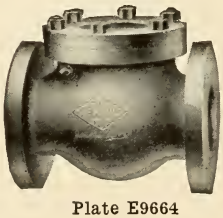


Plate E9664

EXTRA HEAVY SCREWED

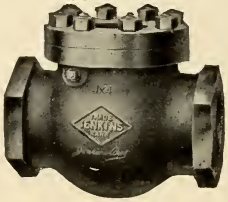


Plate E9665

STANDARD PATTERN

For 150 Pounds Working Pressure

Size.....inches	2	2½	3	3½	4	5	6	7	8	10
Diameter of Flanges.inches	6	7	7½	8½	9	10	11	12½	13½	16
Price, Screwed.....each	13.50	13.50	15.50	20.00	23.00	34.00	40.00	61.00	77.50	120.00
" Flanged..... "	.....	16.00	19.00	23.50	27.00	38.00	45.00	66.00	82.50	125.00

EXTRA HEAVY PATTERN

For 250 Pounds Working Pressure

Size.....inches	2	2½	3	4	5	6	8
Diameter of Flanges.....inches	6½	7½	8¼	10	11	12½	15
Price, Screwed.....each	15.00	20.00	28.00	41.00	54.00	66.00	100.00
" Flanged..... "	17.00	22.00	30.00	44.00	57.00	70.00	105.00

STANDARD IRON BODY GATE VALVES

BRASS TRIMMINGS, WEDGE GATE, OPEN TO THE LEFT NON-RISING STEM

SCREWED

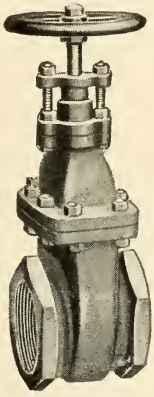


Plate E9671

FLANGED

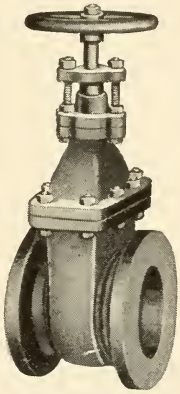


Plate E9672

HUB ENDS

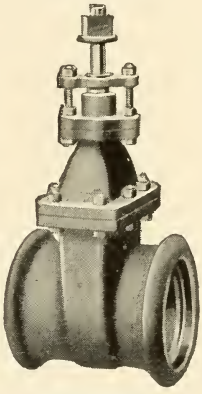


Plate E9673

Adopted November 15, 1911

SCREWED OR FLANGED

Sizes 16-inch and Smaller, for Steam Working Pressures up to 125 Pounds; Sizes 18-inch and Larger, for Pressures up to 100 Pounds

Size.....inches	2	2½	3	3½	4	4½	5	6
Face to Face..inches	7	7½	8	8½	9	9½	10	10½
Diam., Flanges "	6	7	7½	8½	9	9¼	10	11
Price, Screwed, each	10.00	11.50	14.00	17.00	19.00	24.00	27.50	32.50
" Flanged "	12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50

Size.....inches	7	8	9	10	12	14	15	16
Face to Face..inches	11	11½	12	13	14	15	15	16
Diam., Flanges "	12½	13½	15	16	19	21	22¼	23½
Price, Screwed, each	45.00	54.00	76.00	90.00	125.00	.....	.....	.....
" Flanged "	49.00	58.00	81.00	95.00	133.00	181.00	220.00	260.00

Size.....inches	18	20	22	24	26	28	30	....
Face to Face..inches	17	18	19	20	23	26	30	....
Diam., Flanges "	25	27½	29½	32	34¼	36½	38¾	....
Price, Flanged, each	350.00	425.00	530.00	600.00	800.00	950.00	1100.00	....

HUB ENDS

Sizes 12-inch and Smaller, for Water Working Pressures up to 175 Pounds; Sizes 14 and 16-inch, up to 150 Pounds; Sizes 18-inch and Larger, up to 120 Pounds

Size.....inches	2	3	4	5	6	7	8	10
End to End..inches	8½	9	10¼	10¼	10¾	10¾	12	12¾
Price.....each	10.00	14.00	19.00	27.50	32.50	45.00	54.00	90.00

Size.....inches	12	14	16	18	20	24	30	....
End to End..inches	13½	13¾	16	17	17	18	30	....
Price.....each	125.00	173.00	250.00	340.00	415.00	590.00	1075.00	....
" with By-Pass. "	.....	.....	315.00	415.00	500.00	690.00	1225.00	....

All iron gates, same list prices as brass mounted.

STANDARD IRON BODY GATE VALVES

WITH OUTSIDE SCREW AND YOKE, STEEL STEM

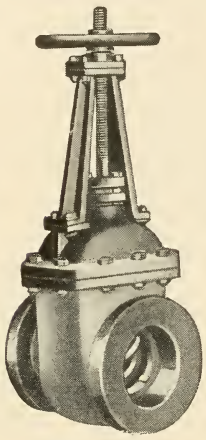


Plate E9681

BRASS TRIMMINGS

FOR STEAM WORKING PRESSURES

Sizes 16-inch and Smaller, up to 125 Pounds; Sizes 18-inch and Larger, up to 100 Pounds

SPUR GEARED

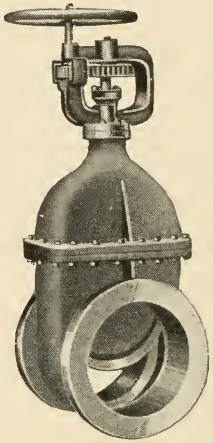


Plate E9682

WITH OUTSIDE SCREW AND YOKE, OPEN TO THE LEFT, WEDGE GATE

The outside screw and yoke indicates whether the valve is open, partly open or closed.

Size.....inches	2	2½	3	3½	4	4½	5	6
Price, with Steel Stem, Screwed....each	17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00
" " " " Flanged.... "	19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00
" " Brass " Screwed.... "	19.00	20.50	23.50	27.00	32.50	40.00	45.00	52.00
" " " " Flanged.... "	21.00	22.50	26.00	29.50	36.50	44.00	49.00	56.00

Size.....inches	7	8	9	10	12	14	15	16
Price, with Steel Stem, Screwed....each	64.00	80.00	105.00	122.00	160.00	.....	.....	.....
" " " " Flanged.... "	68.00	84.00	110.00	127.00	168.00	236.00	285.00	325.00
" " Brass " Screwed.... "	69.00	86.00	113.00	131.00	172.00	.....	.....	.....
" " " " Flanged.... "	73.00	90.00	118.00	136.00	180.00	255.00	310.00	350.00

Size.....inches	18	20	22	24	26	28	30	.....
Price, with Steel Stem, Flanged....each	435.00	525.00	650.00	725.00	950.00	1125.00	1300.00	.....
" " Brass " " .... "	470.00	565.00	700.00	775.00	1025.00	1210.00	1400.00	.....

SPUR GEARED, FLANGED OR HUB END, OPERATED WITH GEARING WEDGE GATE, OPEN TO THE LEFT, NON-RISING STEM

Size .....inches	16	18	20	22	24	26
Price, Flanged End.....each	360.00	460.00	550.00	675.00	750.00	1000.00
" " " with By-Pass.. "	425.00	535.00	635.00	775.00	850.00	1125.00
" Hub End..... "	350.00	450.00	540.00	.....	740.00	.....
" " " with By-Pass..... "	415.00	525.00	625.00	.....	840.00	.....

Size.....inches	28	30	36	42	48	.....
Price, Flanged End.....each	1200.00	1400.00	2100.00	3150.00	4300.00	.....
" " " with By-Pass.. "	1350.00	1550.00	2300.00	3400.00	4600.00	.....
" Hub End..... "	.....	1375.00	2050.00	3100.00	4250.00	.....
" " " with By-Pass..... "	.....	1525.00	2250.00	3350.00	4550.00	.....

Bevel gears, same list as spur gears.

JENKINS BROS. IRON BODY GATE VALVES

IRON BODY, COMPOSITION MOUNTED
INSIDE SCREW, STATIONARY SPINDLE

STANDARD

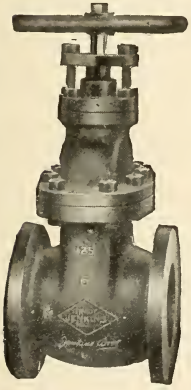


Plate E9691

MEDIUM

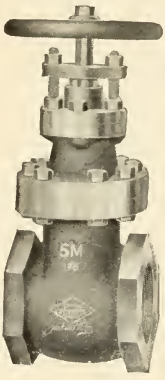


Plate E9692

EXTRA HEAVY

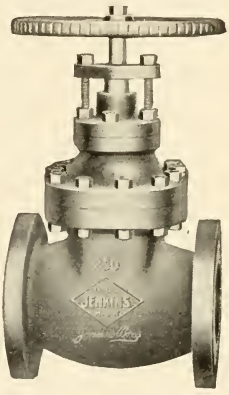


Plate E9693

STANDARD

Sizes 2 to 16-inch, for 125 Pounds Working Steam Pressure or 175 Pounds Working Water Pressure

Sizes 18 to 30-inch, for 100 Pounds Working Steam Pressure or 125 Pounds Working Water Pressure

Size.....inches	2	2½	3	3½	4	4½	5	6
Price, Screwed.each	10.00	11.50	14.00	17.00	19.00	24.00	27.50	32.50
" Flanged. "	12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50
Size.....inches	7	8	9	10	12	14	15	16
Price, Screwed.each	45.00	54.00	76.00	90.00	125.00	.....	.....	.....
" Flanged. "	49.00	58.00	81.00	95.00	133.00	181.00	220.00	260.00
Size.....inches	18	20	22	24	26	28	30	30
Price, Flanged.each	350.00	425.00	530.00	600.00	800.00	9.50	1100.00	.....

MEDIUM PRESSURE

Suitable for 175 Pounds Working Steam Pressure or 250 Pounds Working Water Pressure

Size.....inches	2	2½	3	3½	4	4½	5	6
Price, Screwed.each	15.00	17.00	20.00	25.00	28.00	35.00	40.00	50.00
" Flanged. "	17.50	19.50	23.00	28.00	33.00	40.00	45.00	57.00
Size.....inches	7	8	9	10	12	14	15	16
Price, Screwed.each	75.00	87.00	120.00	145.00	185.00	.....	.....	.....
" Flanged. "	82.00	94.00	127.00	153.00	195.00	300.00	350.00	400.00

EXTRA HEAVY

Suitable for 250 Pounds Working Steam Pressure or 400 Pounds Working Water Pressure

Size .....inches	1½	2	2½	3	3½	4	4½	5	6
Price, Screwed.each	25.00	27.50	33.00	45.00	57.00	60.00	77.00	85.00	100.00
" Flanged. "	27.50	30.00	35.50	48.00	60.00	65.00	82.00	90.00	107.00
Size .....inches	7	8	9	10	12	14	15	16	.....
Price, Screwed.each	125.00	155.00	225.00	250.00	.....	.....	.....	.....	.....
" Flanged. "	132.00	162.00	232.00	258.00	335.00	440.00	540.00	675.00	.....

BRASS STEAM COCKS

These are full weight, standard steam cocks, made of the best steam brass, carefully finished and perfectly ground. They must not be confused with the light weight competitive steam cocks on the market. Carefully tested, suitable for 125 pounds working pressure.

TEE HEAD

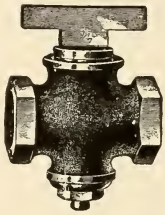


Plate E9701

Size.....inches	¼	⅜	½
Price, without Check.....each	.85	1.00	1.25
" with " ..... "	1.00	1.15	1.40

SQUARE HEAD

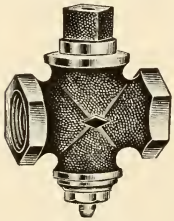


Plate E9702

FLAT HEAD

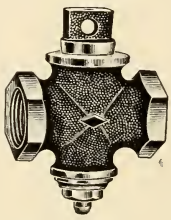


Plate E9703

SQUARE OR FLAT HEAD

Size.....inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, without Check..each	.85	1.00	1.25	1.70	2.35	3.70	4.85	7.30	14.50	22.50
" with " .. "	1.00	1.15	1.40	1.90	2.55	3.95	5.15	7.65	15.00	23.25

MALE AND FEMALE

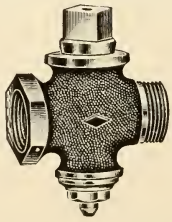


Plate E9704

Size.....inches	¼	⅜	½	¾	1	1¼	1½	2
Price, Square or Flat Head...each	1.35	1.45	2.00	2.50	3.00	5.35	6.75	9.85

THREE-WAY COCKS AND FUSIBLE PLUGS

BRASS THREE-WAY COCKS

WITH CHECK

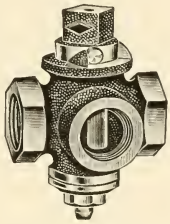


Plate E9711

These are full weight, made of the best steam brass, carefully finished and perfectly ground. Thoroughly tested. They have square head plugs with a check pin to control the movement of the plug.

Size.....inches	½	¾	1	1¼	1½	2
Price.....each	2.50	3.00	3.75	5.75	7.15	11.00

IRON BODY THREE-WAY BRASS PLUG

Plate E9712

These have iron body with steam brass plug and brass nut and washer. Carefully finished and perfectly ground. Square head plug has a check pin to control the movement of the plug.

Size.....inches	¾	1
Price.....each	2.20	2.40

FUSIBLE PLUGS

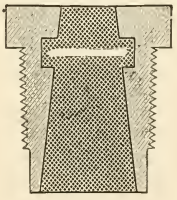


Plate E9713

These are made of steam brass, filled with banca tin, and comply with requirements of boiler inspectors.

Size.....inches	½	¾	1
Price.....each	.60	.75	1.00

IRON COCKS

SQUARE HEAD

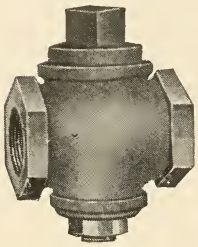


Plate E9721

FLAT HEAD

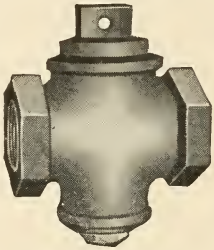


Plate E9722

THREE-WAY

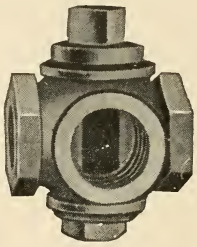


Plate E9723

STANDARD

For 125 Pounds Working Pressure

Size ..... inches	½	¾	1	1¼	1½	2	2½
Price, All Iron, Screwed ..... each	.90	1.05	1.30	1.60	1.95	2.70	4.40
" " " Flanged ..... "	....	....	....	....	....	4.25	6.25
" with Brass Plug, Screwed ..... "	1.30	1.60	1.90	2.65	3.75	5.25	8.75
" " " " Flanged ..... "	....	....	....	....	....	7.00	10.50

Size ..... inches	3	3½	4	5	6	8	....
Price, All Iron, Screwed ..... each	6.75	12.00	15.50	32.00	45.00	100.00	....
" " " Flanged ..... "	9.50	15.00	19.00	....	....	....	....
" with Brass Plug, Screwed ..... "	13.00	27.50	36.50	67.00	94.00	200.00	....
" " " " Flanged ..... "	15.75	30.00	40.00	....	....	....	....

These cocks will be furnished with check when so ordered, at a special price.

EXTRA HEAVY FLAT HEAD

For 200 Pounds Working Pressure

With Cast Iron Plug, Nut and Washer

Size ..... inches	½	¾	1	1¼	1½	2	2½	3	4
Price, All Iron ..... each	1.15	1.25	1.75	2.10	2.80	3.65	6.50	9.00	22.50
" with Brass Washer... "	1.25	1.40	2.00	2.45	3.20	4.15	7.25	10.00	26.00
" " " Plug..... "	1.70	2.25	2.80	3.85	5.60	7.00	13.25	19.00	56.00

THREE-WAY—SCREWED

For 125 Pounds Working Pressure

Size ..... inches	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Price, All Iron..each	1.65	1.80	2.05	2.65	3.65	5.35	7.50	14.00	19.00	36.50	52.00
" with Brass Washer "	1.80	2.05	2.40	3.05	4.15	6.10	8.50	16.00	22.50	42.50	60.00
" " " Plug . "	2.20	2.40	3.10	4.50	6.25	9.75	13.75	30.00	40.00	71.50	100.00

These cocks will be furnished with check when so ordered, at a special price.

Flanged three-way cocks will be furnished to order. Prices on application.

BLOW-OFF VALVES

LUNKENHEIMER SCREWED

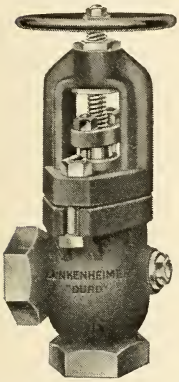


Plate E9731

JENKINS BROS. BRASS

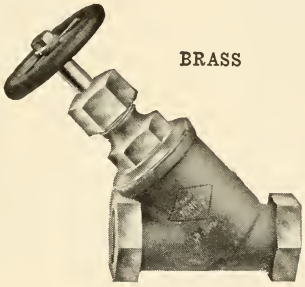


Plate E9732

JENKINS BROS. IRON BODY

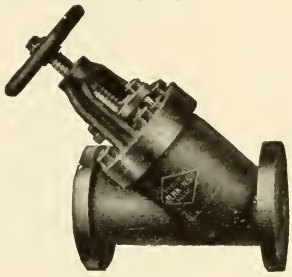


Plate E9733

LUNKENHEIMER DURO BLOW-OFF VALVES

Size ..... inches	1¼	1½	2	2½	3
Price, Screwed ..... each	10.70	12.50	16.00	21.00	27.50
" " and Flanged ..... "	11.30	13.50	17.00	22.00	28.60
" Flanged ..... "	12.00	14.00	18.00	23.00	30.00

JENKINS BROS. BRASS AND IRON BODY BLOW-OFF VALVES

Size ..... inches	½	¾	1	1¼	1½	2	2½	3
Price, Brass, Screwed ..... each	2.00	3.00	4.00	5.00	6.50	9.25	18.00	25.00
" Iron Body, Screwed .. "	....	....	....	....	....	11.00	15.00	20.00
" " " Flanged .. "	....	....	....	....	....	13.00	18.00	23.00

Y VALVES

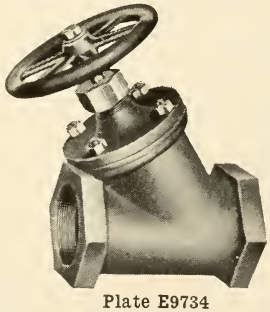


Plate E9734

STEAM METAL Y VALVES

Size ..... inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Brass Disc ..... each	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
" Jenkins Disc ..... "	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00

IRON BODY Y VALVES

Size ..... inches	2	2½	3	3½	4	4½	5	6	7	8
Price, Brass Disc ..... each	7.00	9.00	12.50	15.25	19.00	24.00	27.00	37.50	63.00	72.00
" Jenkins Disc ..... "	10.00	12.00	16.75	19.50	24.00	32.00	40.00	48.00	80.00	90.00

IRON BODY BLOW-OFF VALVES

For Working Pressures up to 250 Pounds

GLOBE

SCREWED

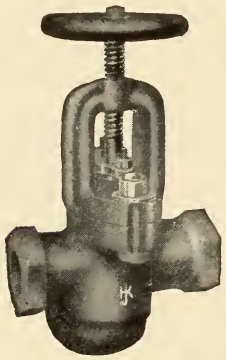


Plate E9741

In the construction of this valve, provision is made for guiding the disc in its chamber, thus preventing passage of scale while the valve is closing.

ANGLE

SCREWED

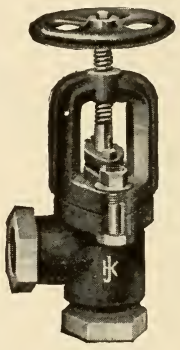


Plate E9742

The disc likewise operates with little friction, owing to its being loosely fitted, while it is guided, so as to cause it to be seated accurately. The valve is provided with a shouldered slot, to adapt it for attachment.

FLANGED

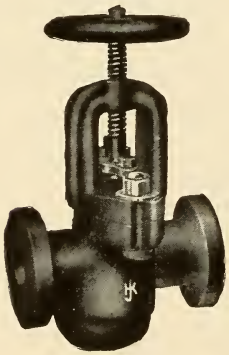


Plate E9743

The closing of the valve causes the valve seat to be washed by a descending current, so that the valve will seat properly. Regularly furnished with babbit discs; for extremely high pressure copper discs are recommended.

Size Inches	Face to Face Inches	Diam. Inches	Price Each
2	9¾	6½	**15.00**
2½	11½	7½	**20.00**
3	13⅛	8¼	**30.00**

FLANGED

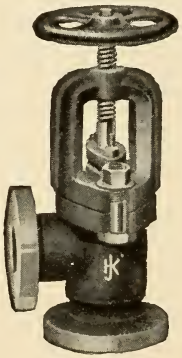


Plate E9744

It is so simple in construction, that it can be taken apart in a few moments. Another important feature is that it never needs grinding in.

Size Inches	Center to Inlet or Outlet In.	Diam. of Flanges	Price Each
1¼	3¼	5	**12.00**
1½	3¼	6	**12.00**
2	4½	6½	**15.00**
2½	5¼	7½	**20.00**
3	6	8¼	**30.00**

SAFETY VALVES

CROSS

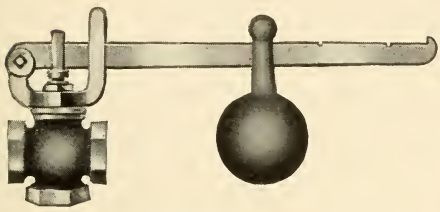


Plate E9751

ANGLE

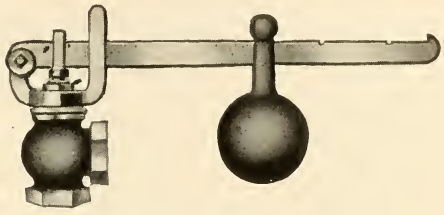


Plate E9752

BRASS CROSS AND ANGLE—BRASS DISC

Size..... inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Cross..each	2.20	2.50	3.25	3.90	4.70	7.15	9.00	12.50	22.50	33.50
" Angle.. "	....	....	3.25	3.90	4.70	7.15	9.00	12.50	....	....

IRON BODY CROSS—BRASS DISC

Size.....inches	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Screwed.....each	5.00	5.80	7.80	13.25	17.25	23.00

Size.....inches	4	4 1/2	5	6	7	8
Diameter of Flanges.....inches	9	....	10	11	12 1/2	13 1/2
Price, Screwed.....each	28.75	34.50	41.50	57.75	93.50	132.00
" Flanged..... "	34.00	....	48.00	65.00	100.00	140.00

BRASS CROSS AND ANGLE—JENKINS DISC

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2
Price.....each	4.00	5.00	6.00	9.00	11.00	16.00
" with Balance Weight, for Low Pressure "	4.90	6.10	7.20	10.10	12.50	17.00

IRON BODY CROSS AND ANGLE—JENKINS DISC

Size..... inches	3/4	1	1 1/4	1 1/2	2	2 1/2
Diameter of Flanges.....inches	3 1/2	4	4 1/2	5	6	7
Price, Screwed.....each	4.50	5.00	7.00	8.00	11.00	17.00
" Flanged..... "	....	....	....	....	13.00	19.00

Size..... inches	3	3 1/2	4	4 1/2	5	6
Diameter of Flanges.....inches	7 1/2	8 1/2	9	9 1/4	10	11
Price, Screwed.....each	22.00	31.00	38.00	47.00	55.00	73.00
" Flanged..... "	25.50	34.00	42.00	52.00	62.00	80.00

Plate E9753

DETROIT POP

The Detroit Pop Safety Valve for house heating boilers is made for steam pressures up to 20 pounds. It is not merely a relief valve, but is designed to pop and give warning of excessive boiler pressure. Being a safety device the valve is manufactured with special care and is thoroughly dependable.

Every valve is set for the desired pressure, and after a thorough test is sealed in such manner as to do away with any chance of the regulation being tampered with. Finished in polished brass.

Size.....inches	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price.....each	5.25	6.00	6.75	8.25	11.25	26.00	37.50

STANDARD POP SAFETY VALVES

Set at Any Pressure Specified up to 250 Pounds

BRASS STANDARD TYPE

SIDE OUTLET
No. 1144

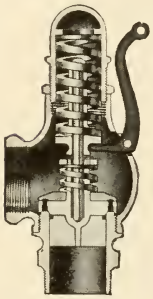


Plate E9761

TOP OUTLET
No. 1148

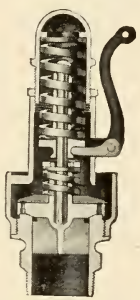


Plate E9762

Nos. 1146 and 1150 are furnished with lock-up attachment but no lock. These valves can be made to conform with the A. S. M. E. Boiler Code for pressures up to 150 pounds when so ordered, for which an additional charge will be made.

For pressures higher than 150 pounds special valves can be made to the code. Valves with special enlarged or reduced inlets for threshing engines, made to order at a special price.

Size ..... inches	½	¾	1
For Boilers, Nominal H. P...	6	6	10
Valve Area.... sq. in.	.196	.441	.785
*Price, No. 1144 .. ea.	**11.00**	**11.00**	**13.00**
* " " 1148 .. "	**8.00**	**8.00**	**10.00**
** " " 1146 .. "	**12.00**	**12.00**	**14.00**
** " " 1150 .. "	**9.00**	**9.00**	**11.00**
Size ..... inches	1¼	1½	2
For Boilers, Nominal H. P...	20	30	40
Valve Area.... sq. in.	1.227	1.767	3.141
*Price, No. 1144 .. ea.	**16.00**	**19.00**	**29.00**
* " " 1148 .. "	**12.00**	**15.00**	**23.00**
** " " 1146 .. "	**17.00**	**21.00**	**31.00**
** " " 1150 .. "	**13.00**	**17.00**	**25.00**

*Standard Type.

**Lock up Type.

IRON BODY PLAIN SPRING TYPE

No. 1101

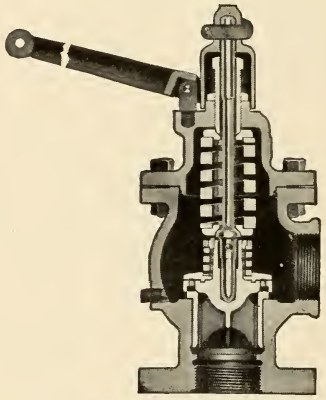


Plate E9763

These valves are made with combination flanged and screwed base. Hexagon screwed base furnished, when so ordered, at same price. When not otherwise specified, No. 1105, encased spring type with brass seat will be furnished.

Size In.	For Boilers Nominal H. P.	Diam. Base Flange Inches	Center to End Inches	Height Inches
2½	70	7½	3⅞	18¾
3	100	8¼	4¼	20
3½	125	9	4⅝	22¼
4	150	10	5	23¼
4½	175	10½	6	26¼

Size In.	*Price No. 1101 Brass Seat	*Price No. 1101 Monel Metal Seat	†Price No. 1105 Brass Seat	†Price No. 1105 Monel Metal Seat
2½	**42.00**	**48.00**	**57.00**	**63.00**
3	**50.00**	**57.00**	**68.00**	**75.00**
3½	**68.00**	**75.00**	**88.00**	**95.00**
4	**75.00**	**87.00**	**98.00**	**110.00**
4½	**100.00**	**115.00**	**125.00**	**140.00**

*Plain Spring.

†Encased Spring.

No. 1101 Valves furnished locked up at .50 each net extra. No. 1105 Valves are furnished locked up.

WATER RELIEF VALVES

BRASS AND IRON BODY

BRASS

MALE BASE
No. 1126

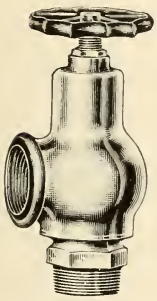


Plate E9771

FEMALE BASE
No. 1128

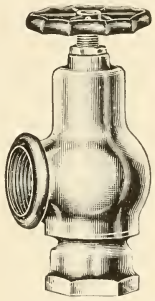


Plate E9772

HYDRAULIC
No. 1130

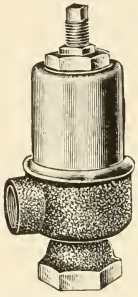


Plate E9773

IRON BODY
No. 1123

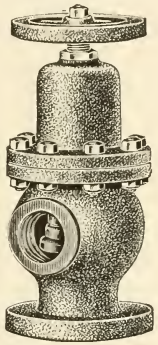


Plate E9774

No. 1126 water relief valves, sizes 2½-inch and smaller, will be set at any pressure from 10 up to 250 pounds, and sizes 3, 3½ and 4-inch will be set at any pressure from 10 up to 200 pounds. No. 1128 valves will be set at any pressure specified from 5 up to 500 pounds.

No. 1126 brass relief valves will be furnished with male base up to and including 2½-inch; and with female base sizes 3 to 4-inch, inclusive. When required otherwise or flanged, they will be furnished at a special price. Especially adapted for pumps, standpipes, pipe lines, cylinders, etc.

Size .....inches	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, No. 1126, Fin .....each	11.00	11.00	13.00	16.00	19.00	29.00	46.00	77.00	105.00	135.00
" " 1126, N. P..... "	12.00	12.00	14.00	18.00	22.00	32.00	50.00	85.00	115.00	150.00
" " 1128, Fin..... "	25.00	25.00	30.00	35.00	40.00	55.00	100.00	.....	.....	.....
" " 1128, N. P..... "	26.50	26.50	32.00	37.50	43.00	59.00	106.00	.....	.....	.....

BRASS HYDRAULIC, No. 1130

These valves will be set at any pressure specified up to 5000 pounds, according to size. Prices on application.

IRON BODY, BRASS SEAT, No. 1123

These valves are made with combination flanged and screwed base. Hexagon screwed base furnished, when so ordered, at same price.

Size Inches	Diameter of Base Flange Inches	Center of Outlet to Bottom of Base Flange Inches	Diameter of Outlet Flange Inches	Center of Valve to End of Outlet Inches		Total Height Inches	Price, with Brass Seat Each
*2½	7½	5¼	..	3⅞	Scrd. Outlet	17⅞	42.00
*3	8¼	5¾	..	4¼		18⅞	50.00
*3½	9	6 3/16	..	4⅝		20⅜	68.00
*4	10	6 11/16	..	5		21	75.00
*4½	10½	7⅛	..	6		22½	100.00
5	11	7⅜	10	7 5/16	Flgd.	23⅞	120.00
6	12½	8½	11	8⅛		25⅞	170.00

*These sizes made with screwed outlet, unless otherwise specified.

To adjust for different pressures, loosen locknut, turn handwheel or pressure screw to right to increase pressure, to left to decrease pressure, then tighten locknut.

When valves are wanted for higher pressures than 250 pounds, price will be quoted on application.

Will be set any pressure from 10 up to 250 pounds. Made with wheel regularly, which will always be furnished, unless otherwise ordered. Made also with square stem nut for wrench adjustment.

DIAMOND WATER RELIEF VALVES

IRON BODY AND ALL BRASS

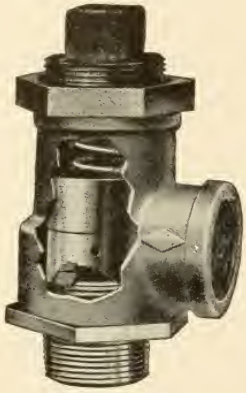


Plate E6211

The Diamond Water Relief Valves regularly have cast iron body, bronze spring, brass valve seat and brass plunger with countersunk hard rubber disc. They are also made all brass.

All working parts are brass or bronze, and the hard rubber disc is countersunk into the plunger so that it cannot expand, and is very durable.

In many cities the water pressure varies. Excessive pressure, such as fire pressure on city mains, requires a relief valve to remove the strain from the house pipes, range boiler, faucets, etc. Cities frequently require the use of a relief valve in such buildings to prevent injury to pipe and fittings from such excessive pressure.

If water pressure regulators are used, the Diamond Water Relief Valve is necessary to relieve pressure generated by the expansion of water in the range boiler, as water will not flow back to the mains through pressure regulators. ¾-inch size is sufficiently large for ordinary residence use.

Another important use for the Diamond Relief Valve is in connection with pressure tank systems. Excessive pressure might strain the tank and cause it to leak, especially when windmill or power is used to operate the pump. We advise the use of a relief valve the same size as the discharge pipe of the pump, or preferably one size larger.

Diamond Water Relief Valves are the lowest priced good relief valves on the market. They can be placed at any convenient point in the pipes.

Regularly set to relieve at 70 pounds, but can be furnished set to relieve at any desired pressure.

Size.....inches	¾	1	1¼
Price, Iron Body.....each	2.00	3.00	4.00
" All Brass..... "	3.00	4.00	5.50

DUBUQUE BRASS WATER RELIEF VALVES

¾-INCH FOR COLD WATER

Plate E6212

Dubuque Water Relief Valves are made entirely of brass, with Bronze Springs and Special Rubber Discs. They are used extensively in connection with small Water Supply Systems, and on Water Supply Pipes where city ordinances require an All Brass Relief Valve. Regularly sent set to relieve at 70 pounds pressure, but can be furnished to relieve at any desired pressure at the same price. A moderate priced and very satisfactory Relief Valve. One size only, for ¾-inch iron pipe.

Price.....each 2.50

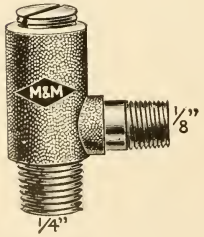


Plate E6213

JUNIOR DIAMOND RELIEF VALVES

The Junior Diamond Relief Valve is made of solid brass, and in one size only, being threaded for ¼-inch pipe on the pressure end and ⅛-inch pipe on relief side.

It is principally used to relieve excessive pressure caused by expansion of water in range boilers, when pressure regulators and meters are used.

It has a countersunk rubber disc closing against a raised rounded seat, but can be furnished with leather disc if desired.

Unless otherwise ordered, valves are set to relieve at 70 pounds.

Price, All Brass.....each .80

IRON BODY BACK PRESSURE VALVES

STANDARD

HORIZONTAL

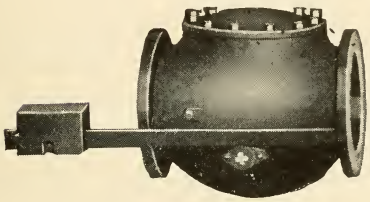


Plate E9791

VERTICAL

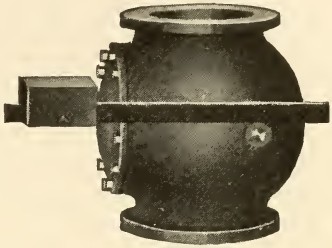


Plate E9792

Weighted for back pressure up to 5 pounds. The construction is such that the horizontal pattern can only be furnished in sizes 4-inch and larger.

Size ..... inches	2	2½	3	3½	4	5
Price, Screwed ..... each	11.00	13.00	15.00	19.00	22.50	33.50

Size ..... inches	6	7	8	10	12	....
Price, Screwed ..... each	43.00	70.00	85.00	120.00	180.00	....
" Flanged ..... "	47.00	75.00	90.00	130.00	200.00	....

NOISELESS—PISTON TYPE

FOR NON-CONDENSING ENGINES ONLY

HORIZONTAL

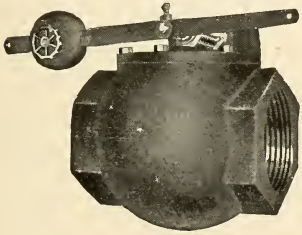


Plate E9793

VERTICAL

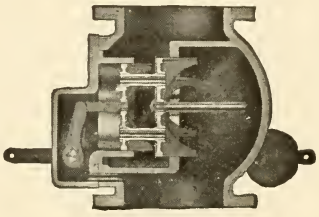


Plate E9794

These valves can be placed in either horizontal or vertical position by changing the position of lever and weight. They have a single disc equal to the full area of the pipe and are provided with a balancing disc to eliminate excessive weighting.

SCREWED

Size ..... inches	2	2½	3	3½	4	4½	5	6	7	8	9
Price ..... each	14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00	100.00	120.00

FLANGED

Size ..... inches	2	2½	3	3½	4	4½	5	6	7	8
Diam. of Flanges. inches	6	7	7½	8½	9	9¼	10	11	12½	13½
Price ..... each	14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00	100.00

Size ..... inches	9	10	12	14	15	16	18	20	22	24
Diam. of Flanges. inches	15	16	19	21	22¼	23½	25	27½	29½	32
Price ..... each	120.00	145.00	220.00	345.00	400.00	465.00	600.00	750.00	900.00	1050.00

Pressures: Sizes 2 to 6-inch, 1 to 10 pounds; 6 to 10-inch, 1 to 6 pounds; 10 to 20-inch, 1 to 4 pounds; 20 to 24-inch, 1 to 3 pounds, with a preference for horizontal installation. When desired for other ranges, the positions and pressures must be specified. They will be furnished, based upon the above working range, up to 15 pounds, without extra charge.

DAVIS NOISELESS BACK PRESSURE VALVES

FOR NON-CONDENSING ENGINES ONLY

Suitable for Exhaust Steam Pressure up to 10 Pounds

SCREWED ENDS
HORIZONTAL POSITION

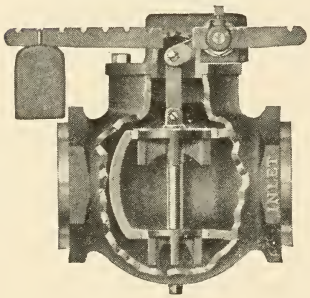


Plate E9801

FLANGED ENDS
VERTICAL POSITION

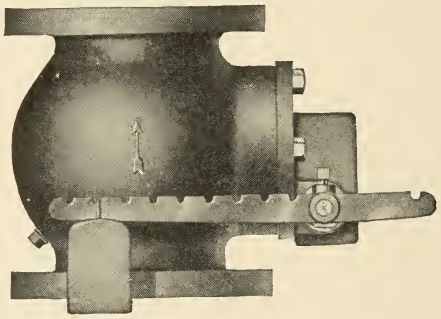


Plate E9302

The Davis Back Pressure Valve is designed for use on the exhaust line of a non-condensing engine to maintain a given back pressure of steam for heating, drying, cooking or other purposes.

It is a distinct improvement on the old style single-seated valve, the many objectionable features of which are entirely eliminated. It has a double piston type of inner valve with discs of different area. One disc therefore partially balances the other, and enables the valve to maintain any back pressure up to ten pounds by the use of a comparatively small counterweight. Valves for higher pressure are made to order only.

It is entirely noiseless in operation, and cannot possibly injure the seats by pounding. The action of the inner valve is similar to the movement of a piston in a cylinder; it simply slides on the seats when opening or closing, and rests against a spring plate when closed. The construction of the inner valve and seats is of such a nature that uneven expansion of the metals will not cause the valve to stick or bind, a patented feature which places this valve in a class by itself.

This valve may be placed in a horizontal position with the cover on the top, bottom or side; in a vertical position, or in an oblique position. The most desirable for sensitive regulation, however, is horizontal with the cover on the top. When used on vacuum systems the discs may be bevel-seated and ground to a tight fit if desired.

Size..... inches	2	2½	3	3½	4	4½	5
Price..... each	14.00	16.00	18.00	22.00	25.00	30.00	40.00
Size..... inches	6	7	8	9	10	12	14
Price..... each	60.00	80.00	100.00	120.00	145.00	220.00	345.00
Size..... inches	15	16	18	20	22	24	26
Price..... each	400.00	465.00	600.00	750.00	900.00	1050.00	1200.00

Sizes from 2 to 12-inch, inclusive, have either screwed or flanged ends; sizes 14-inch and larger are made with flanged ends only.

DAVIS AUTOMATIC STOP AND CHECK VALVES

CLASS C

Suitable for any Working Pressure up to 250 Pounds

GLOBE PATTERN

SECTIONAL

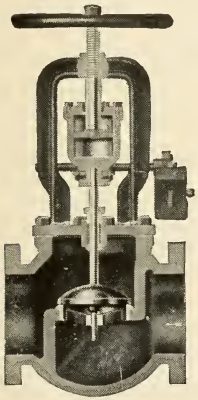


Plate E9811

END ELEVATION

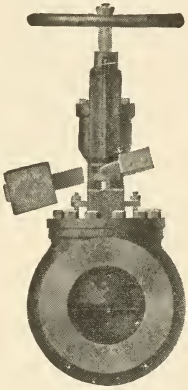


Plate E9812

ANGLE PATTERN
SECTIONAL

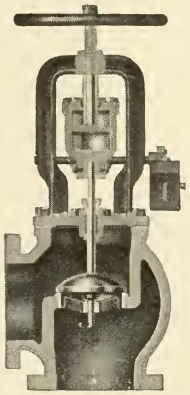


Plate E9813

Class C automatic stop and check valves are intended to prevent a reverse flow of steam into a disabled boiler.

Most valves of this class have an internal dashpot which is liable to become coated with scale or catch some foreign matter and cause the plunger to stick or freeze tight so the valve is inoperative. This is a common complaint against stop and check valves, which has condemned their use in many instances.

To overcome this difficulty the Davis Class C Valve is made with an oil dashpot, rigidly connected to the stem, which is located outside the valve body away from the action of the steam, and while it effectively cushions the disc it cannot possibly be the source of any trouble. This feature is a distinct improvement on any construction yet devised, and insures a valve that is absolutely dependable regardless of operating conditions.

These valves will automatically cut the boiler in or out, and when closed they are tight the same as any common globe or gate valves. They also act as equalizing valves, insuring each unit being kept up to the average pressure in the header.

Size Inches	Price Each	Length Face to Face Globe, Inches	Center to Face Angle Inches	*Diameter of Flanges Inches	Approximate Weight, Pounds
2	45.00	9½	4¾	6½	110
2½	48.00	9½	4¾	7½	125
3	50.00	14¾	7⅜	8¼	225
3½	55.00	14¾	7⅜	9	235
4	60.00	14¾	7⅜	10	250
4½	65.00	14¾	7⅜	10½	350
5	70.00	14¾	7⅜	11	370
6	90.00	15½	7¾	12½	400
7	120.00	19½	9¾	14	500
8	140.00	19½	9¾	15	780
10	190.00	22½	11¼	17½	1000
12	250.00	23½	11¾	20	1250

All sizes have extra heavy flanged ends only.

DAVIS PRESSURE REGULATING VALVES

For Any Initial Pressure up to 200 Pounds

No. 1
SCREWED

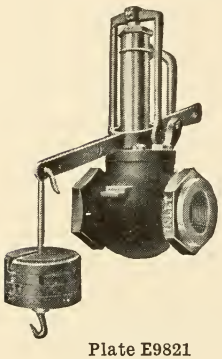


Plate E9821

No. 2
FLANGED

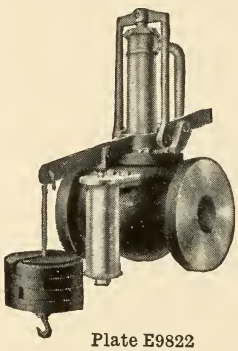


Plate E9822

No. 3
SCREWED

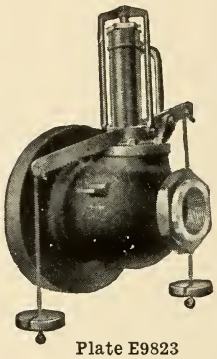


Plate E9823

Adopted May 1, 1913

NOS. 1 AND 2

The No. 1 pressure regulator or reducing valve will reduce any initial pressure of 200 pounds or less to any lower delivery pressure and automatically maintain it constant, regardless of the demand or fluctuations in the high pressure. The delivery pressure may be as *low as 1 pound* if the regulator is counterweighted by suspending weights from the opposite end of the lever to overcome the actual weight of the internal parts. Always specify the delivery pressure so a valve of proper construction may be furnished.

No. 2 is practically the same in construction as No. 1; the only difference in construction is the addition of an oil dashpot, which will prevent the lever from jumping when the delivery pressure is subject to pulsation.

Size.....inches	½	¾	1	1¼	1½	2	2½	3	3½
Price, No. 1.....each	20.00	20.00	22.00	24.00	25.00	30.00	35.00	40.00	50.00
" " 2..... "	24.00	24.00	26.00	28.00	30.00	35.00	40.00	46.00	56.00

Size.....inches	4	4½	5	6	7	8	10	12	14
Price, No. 1.....each	60.00	70.00	75.00	100.00	135.00	175.00	275.00	400.00	500.00
" " 2..... "	68.00	80.00	85.00	111.00	146.00	187.00	288.00	414.00	516.00

Sizes 1¼-inch and under have bronze bodies; 1½-inch and over are made of iron; 1-inch and under have screwed ends only; 2 to 6-inch, inclusive, have either screwed or flanged ends; 7-inch and over have flanged ends only. Unless otherwise ordered, screwed end valves are sent on orders for sizes less than 6-inch.

No. 3

No. 3 is constructed the same as Nos. 1 and 2, the only difference being that it has an expanded outlet. It is equally well adapted to either high or low pressure service.

Size.....inches	1½ x 3	2 x 3	2 x 4	2½ x 5	3 x 5	3 x 6	3½ x 7
Price.....each	40.00	45.00	50.00	65.00	75.00	85.00	100.00

Size.....inches	4 x 6	4 x 7	4 x 8	5 x 8	5 x 9	5 x 10	6 x 8
Price.....each	110.00	125.00	135.00	155.00	175.00	195.00	220.00

Size.....inches	6 x 10	6 x 12	8 x 10	8 x 14	8 x 16	10 x 16	10 x 20
Price.....each	250.00	280.00	325.00	360.00	400.00	450.00	500.00

Sizes 1½ x 3 x 2 x 4-inch have screwed ends only; 2½ x 5 to 3 x 6-inch have inlet screwed and outlet flanged; 3½ x 7-inch and larger have inlet and outlet flanged only.

FISHER REDUCING VALVES

REGULAR PATTERN

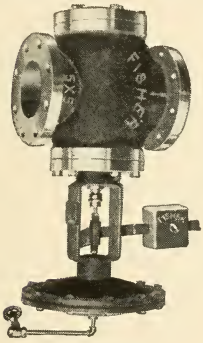


Plate E9831

INCREASED OUTLET TYPE

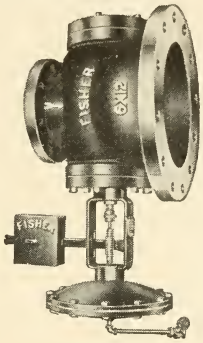


Plate E9832

PISTON TYPE

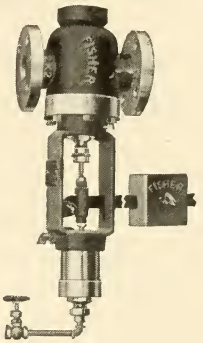


Plate E9833

REGULAR PATTERN

Fisher Reducing Valves are applicable to a wide range of conditions, reducing steam, air, water, gas or oil. Do not fail to specify whether globe or angle pattern is wanted and the maximum and minimum high and low pressure. Can furnish vertical if preferred.

Size.....inches	3/8, 1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Angle, Screwed.....each	25.00	27.50	30.00	35.00	42.50	50.00	58.00	70.00
" " Flanged..... "	.....	.....	35.00	40.00	45.00	50.00	60.00	75.00
" Globe, Screwed..... "	27.50	28.50	32.50	37.50	45.00	52.50	60.00	72.50
" " Flanged..... "	.....	.....	35.00	40.00	45.00	55.00	65.00	80.00

Size.....inches	3 1/2	4	4 1/2	5	6	8	10	12
Price, Angle, Flanged.....each	87.50	100.00	112.50	125.00	150.00	225.00	275.00	450.00
" Globe, " ..... "	90.00	110.00	122.50	135.00	150.00	225.00	275.00	450.00

Prices of extra heavy on application.

INCREASED OUTLET TYPE

This type is intended for low pressure on steam heating plants. Being of the inverted type, the pipe line can be placed near the ceiling, while with a vertical type this is impossible. Can furnish increased outlet valves in vertical type if preferred.

Size.....inches	1x1 1/4, 1 1/2 or 2	1 1/4x1 1/2, 2 or 2 1/2	1 1/2x2, 2 1/2 or 3	2x2 1/2, 3, 3 1/2 or 4
Price, Screwed....each	32.50	37.50	47.50	55.00
" Flanged.... "	40.00	45.00	50.00	55.00

Size.....inches	2 1/2x3, 3 1/2, 4, 4 1/2 or 5	3x3 1/2, 4, 4 1/2, 5 or 6	3 1/2x4, 4 1/2, 5, 6 or 7	4x4 1/2, 5, 6, 7 or 8
Price, Screwed....each	75.00	80.00	.....	.....
" Flanged.... "	76.50	85.00	100.00	112.50

Size.....inches	5x6, 7, 8, 9 or 10	6x8, 9, 10 or 12	8, 9, 10, 12, 14 or 16	10x12	10x14	10x16
Price, Flanged.....each	140.00	167.50	245.00	300.00	320.00	350.00

Size.....inches	10x18	10x20	12x14	12x16	12x18	12x20	12x22	12x24
Price, Flanged.....each	375.00	400.00	460.00	485.00	510.00	540.00	565.00	600.00

PISTON TYPE

This reducing valve is for high pressure work, handling high pressures of from 50 to 400 pounds on the reduced side of the valve. It has a cylinder with a special packed piston, same being an exclusive feature in these valves.

Made in the same sizes and takes the same list prices as the regular inverted type listed above.

KIELEY REGULATING VALVES

SPECIAL 98 VACUUM

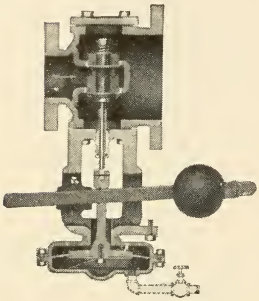


Plate E9841

EUREKA LOW PRESSURE

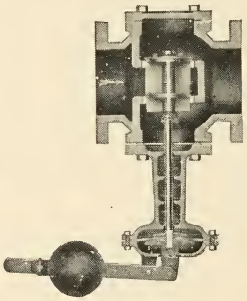


Plate E9842

HIGH PRESSURE PISTON PACKED

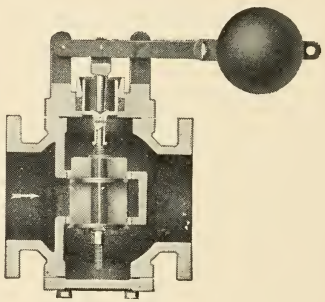


Plate E9843

SPECIAL 98 VACUUM

Constructed specially for all vacuum, atmospheric and very low pressure systems, such as are now being used on many buildings for heating purposes.

Size.....inches	1x1	1x2	1¼x1¼	1¼x2½	1½x1½	1½x3	2x2	2x4	2½x2½
Price.....each	22.00	33.00	28.00	42.50	35.00	53.50	44.00	72.00	57.00
Size.....inches	2½x5	3x3	3x6	3½x3½	4x4	4x6	4x8	5x5	5x10
Price.....each	96.00	72.00	126.00	85.00	100.00	140.00	187.50	135.00	242.00
Size.....inches	6x6	6x12	7x7	8x8	8x14	8x16	10x10	12x12	.....
Price.....each	180.00	325.00	225.00	275.00	400.00	500.00	350.00	470.00	.....

Sizes 1x2 and 1x1 to 2x2 made with screw ends only, and small end of 1¼x2½ to 2x4 made with small ends screwed and large end flanged. All larger have boths ends flanged.

EUREKA LOW PRESSURE

For reducing steam pressures from the inital or high pressure carried, which may be as high as 125 pounds per square inch, down to any pressure on the reduced side from 1 to 15 pounds.

Size....inches	¾	1	1x2	1¼	1¼x2½	1½	1½x3	2	2x4	2½
Price....each	20.00	22.00	33.00	28.00	42.50	35.00	53.50	44.00	72.00	57.00
Size....inches	2½x5	3	3x6	3½	4	4x6	4x8	5	5x10	6
Price....each	96.00	72.00	126.00	85.00	100.00	140.00	187.50	135.00	242.00	180.00
Size....inches	6x12	7	8	8x14	8x16	9	10	12	.....	.....
Price....each	325.00	225.00	275.00	400.00	500.00	350.00	350.00	470.00	.....	.....

Sizes ¾ to 2 and 1x2 made with screw ends only, and small end of 1¼x2½ to 2x4 made with small ends screwed and large end flanged. All larger have both ends flanged.

HIGH PRESSURE—PISTON PACKED

For reducing steam pressure from the inital or high pressure carried, which may be as high as 125 pounds per square inch, down to any pressure on the reduced side above 15 pounds that may be desired.

Size.....inches	¾	1	1¼	1½	2	2½	3	3½
Price .....each	20.00	22.00	28.00	35.00	44.00	57.00	72.00	85.00
Size.....inches	4	5	6	7	8	9	10	12
Price .....each	100.00	135.00	180.00	225.00	275.00	350.00	350.00	470.00

Sizes ¾ to 2 inches, inclusive, made with screw ends only; all larger have flanged ends. Companion flanges are always extra and only furnished with valves when so ordered. We construct to order valves for extra high initial pressures or to meet special conditions. In ordering state clearly all conditions.

MUELLER REDUCING AND REGULATING VALVES

FOR WATER—SINGLE SEAT

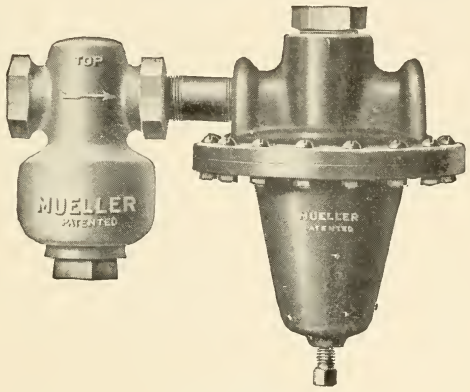


Plate E9851

These valves are designed for service on water. They are constructed with reduced seat openings. They are especially adapted for use on house service in sizes not larger than one inch. Sizes above one inch are satisfactory when the delivery pressure is less than 40 per cent of the initial pressure. For house service requiring a regulator larger than one inch where the delivery pressure is greater than 40 per cent of the initial pressure or where a large volume is required, a valve with full sized seat opening must be used.

All sizes are adaptable to services where large reductions are to be made.

CONSTRUCTION.—Standard stock valves have iron bodies, iron diaphragm chambers, phosphor bronze diaphragms and all interior working parts of bronze. Seat discs are furnished of suitable material for the required service. Stock valves sizes up to two inches inclusive are suitable for initial pressures up to 200 pounds and delivery pressure up to 125 pounds. Where either the initial or delivery pressure exceeds these amounts, valves will be made with bronze bodies at prices given.

INSTRUCTIONS.—It is preferable to place these valves on a horizontal pipe with diaphragm chamber down. Installed in this way they will give the maximum service. Where impracticable to place on a horizontal pipe they may be used on a vertical pipe and when so placed will give good service impaired only by the collection of sediment around the piston.

As the proper working of any valve is dependent upon the exclusion of all scale, grit, cuttings and other foreign substances, it is good policy to thoroughly blow out the pipes before installing the valve.

STRAINERS.—In all cases regulators are furnished with strainers complete as illustrated, unless otherwise specified.

INFORMATION IN ORDERING.—In ordering or asking for prices on valves, please give the following information: Highest or lowest initial pressure in pounds, and whether variable or constant; required low, or delivery pressure; size of pipe to be supplied, and approximate quantity or volume to be used per minute.

INSTALLATION.—Any proper working regulator acts as a check valve. A reliable relief valve should be installed in connection with the regulator in every case where the building up of the pressure from any cause is to be avoided.

Size.....inches	½	¾	1	1–¼	1–½	2
Shipping Weight.....pounds	11½	14	17¾	25¼	34¼	53
Price, Japanned Iron Body .....each	10.00	10.75	17.30	28.50	39.20	56.90
" Brass Body..... "	16.80	17.95	25.30	41.55	55.70	80.90

FISHER BALANCED AND FLOAT VALVES

BALANCED LEVER VALVE

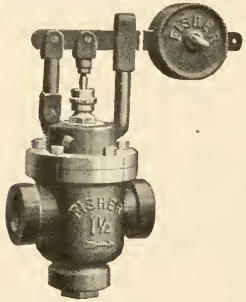


Plate E9861

FLOAT VALVE

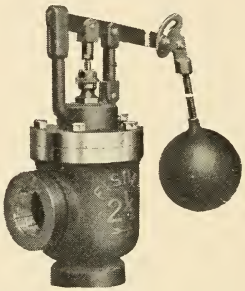


Plate E9862

BALANCED LEVER VALVES

These valves are designed to meet all conditions requiring a lever valve not affected by any pressure but controlled by some outside force used in connection with lever.

Size.....inches	½	¾	1	1¼	1½	2	2½	3
Price.....each	**7.75**	**8.00**	**10.00**	**11.00**	**12.00**	**14.00**	**19.00**	**25.00**

Above prices are for angle or globe, screwed. Prices of flanged valves and larger sizes on application.

FLOAT VALVES

In open tanks or reservoirs where a predetermined level of water or other fluid is to be maintained, there should be installed a float valve. It is an automatic valve, controlled by a seamless copper float, directly connected to the lever by an adjustable stem. Suitable for cold water or air pressures ranging up to 200 pounds. If valves are to be used for hot water, steam, oil or other service, please specify with order.

Size.....inches	½	¾	1	1¼	1½	2	2½	3
Size Float..... "	7	7	7	7	7	8	8	8
Price, Screwed.....each	**11.75**	**12.00**	**14.00**	**15.00**	**16.00**	**18.00**	**23.00**	**29.50**
" Flanged..... "	.....	.....	**14.00**	**15.00**	**16.00**	**18.00**	**23.00**	**29.50**
Size.....inches	3½	4	5	6	8	10	12	....
Size, Float..... "	8	10	10	10	10	12	12	....
Price, Flanged.....each	**38.00**	**49.00**	**68.50**	**81.00**	**128.50**	**140.00**	**170.00**	....

Made in angle and globe patterns.

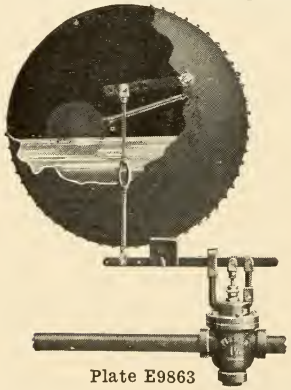


Plate E9863

TANK CONTROLLERS

This device will control steam supply to pump according to accumulation of condensation in receiver tank, or if the pump is supplying tank, it will control pump so as to maintain a certain level in tank. It can also be installed on waterline to control water level in tank or the overflow where the tank is discharging independently into sewer or against no pressure. Consists of balanced lever valve, connecting rods with turnbuckle, bell crank, stuffing box and seamless copper low pressure float. Tank end of stuffing box has standard pipe thread.

Size.....inches	½	¾	1	1¼	1½	2	2½
Size, Float..... "	7	7	7	7	7	8	8
Price.....each	**30.00**	**32.50**	**35.00**	**37.50**	**40.00**	**45.00**	**50.00**
Size.....inches	3	3½	4	4½	5	6	....
Size, Float..... "	8	8	10	10	10	10	....
Price.....each	**55.00**	**60.00**	**70.00**	**80.00**	**90.00**	**100.00**	....

FISHER PUMP GOVERNORS

REGULAR PATTERN

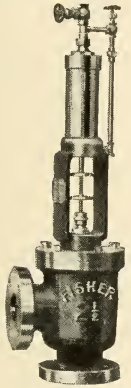


Plate E9871

EXCESS PRESSURE

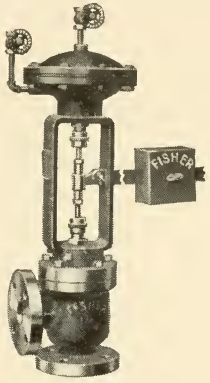


Plate E9872

VACUUM PUMP

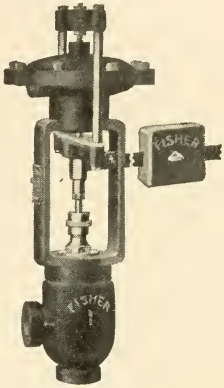


Plate E9873

Regular Pattern Governor.—For pressures from 5 to 500 pounds. Can also be furnished to carry a hydraulic pressure of 10000 pounds.

Excess Pressure Governor.—Designed as a thoroughly reliable excess pressure pump governor.

Vacuum Pump Governor.—This type is to be used in connection with all vacuum systems of heating or where a certain number of inches of vacuum are to be maintained. Specify number of inches of vacuum required, when ordering.

Size Inches	Price, Each											
	Regular Pattern				Excess Pressure				Vacuum Pump			
	Angle		Globe		Angle		Globe		Angle		Globe	
	Screwed	Flanged	Screwed	Flanged	Screwed	Flanged	Screwed	Flanged	Screwed	Flanged	Screwed	Flanged
*¼, ⅜	25.00	.....	25.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
½	25.00	.....	25.00	.....	25.00	.....	25.00	.....	30.00	.....	30.50	.....
¾	27.50	.....	27.50	.....	27.50	.....	27.50	.....	30.00	.....	30.50	.....
1	30.00	35.00	30.00	37.50	30.00	35.00	30.00	37.50	35.00	40.00	36.00	42.50
1¼	35.00	40.00	35.00	42.50	35.00	40.00	35.00	42.50	40.00	45.00	41.00	48.50
1½	42.50	45.00	42.50	47.50	42.50	45.00	42.50	47.50	47.50	50.00	48.50	53.00
2	50.00	50.00	50.00	52.50	50.00	50.00	50.00	52.50	55.00	55.00	56.00	58.50
2½	58.00	60.00	58.00	63.00	58.00	60.00	58.00	63.00	63.00	65.00	64.00	70.00
3	70.00	75.00	70.00	78.50	70.00	75.00	70.00	78.50	75.00	80.00	78.50	88.00
3½	82.50	87.50	82.50	90.00	82.50	87.50	82.50	90.00	.....	92.50	.....	100.00
4	.....	100.00	.....	105.00	.....	100.00	.....	105.00	.....	105.00	.....	115.00
4½	.....	112.50	.....	117.50	.....	112.50	.....	117.50	.....	.....	.....	.....
5	.....	125.00	.....	130.00	.....	125.00	.....	130.00	.....	.....	.....	.....
6	.....	150.00	.....	160.00	.....	150.00	.....	160.00	.....	.....	.....	.....
7	.....	187.50	.....	197.50	.....	.....	.....	.....	.....	.....	.....	.....
8	.....	225.00	.....	235.00	.....	.....	.....	.....	.....	.....	.....	.....
10	.....	275.00	.....	275.00	.....	.....	.....	.....	.....	.....	.....	.....
12	.....	450.00	.....	450.00	.....	.....	.....	.....	.....	.....	.....	.....

Give maximum and minimum boiler pressure, also maximum and minimum pump discharge pressure. If used on anything besides cold water, give kind of liquid.

Furnished also in extra heavy flanged.

*Angle not made in ¼-inch size.

GARDNER GOVERNORS

STANDARD GOVERNORS

CLASS A

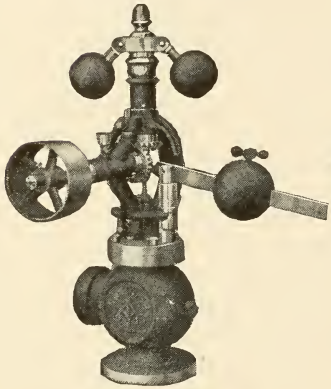


Plate E9881

CLASS B

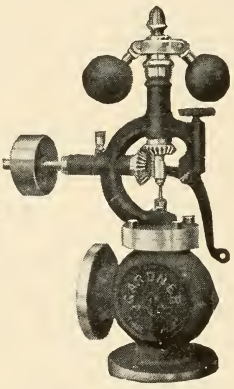


Plate E9882

SPRING GOVERNOR
CLASS A

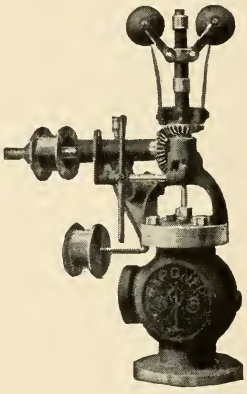


Plate E9883

SPRING GOVERNOR
HORIZONTAL TYPE

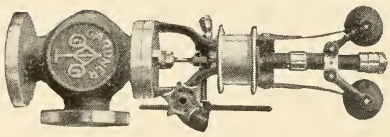


Plate E9884

The Standard Class A Governor is of the gravity action and is especially adapted for the larger types of stationary engines. In this governor the centrifugal force of the balls is opposed by the resistance of a weighted lever and the speed is varied by the position of the weight on the lever. The automatic safety stop is simple and absolutely reliable. The action is accomplished by permitting a slight oscillation of the shaft bearing, which is supported between centers and held in position by the pull of the belt; a projection at the lower part of the shaft bearing supports the fulcrum of the speed lever. If the belt breaks or slips off the pulley, the support of the fulcrum is forced back, allowing the fulcrum to drop, instantly closing the valve.

The Standard Class B Governor combines both the spring and gravity actions, and is adapted for all styles of slow and medium speed stationary engines.

In the action of this governor the centrifugal force of the pendulous balls operates against the resistance of a coiled steel spring enclosed within a case and pivoted on the speed lever; by means of a screw the amount of compression on the spring can be changed so as to give a wide range of speed.

A continuation of the speed lever makes a convenient Sawyer's hand lever. By attaching a cord to this lever the valve of the governor can be controlled at a reasonable distance from the governor.

Spring governors are recommended for traction and high speed stationary engines. They are quick and sensitive in action and are therefore capable of responding promptly to the various changes in load.

As the name implies, the governors are of spring action entirely and work well in any position. Class A is fitted with speeder, Sawyer's lever and automatic stop. Class B is fitted with speeder and Sawyer's lever, but without automatic safety stop.

GARDNER GOVERNORS

DIRECTIONS FOR ORDERING AND PRICE LISTS

STYLES OF VALVE CHAMBERS

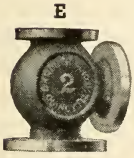


Plate E9891

Plate E9892

Plate E9893

Plate E9894

Plate E9895

Plate E9896

Always state whether spring or standard is desired, Classes A or B and plain or finished; also select the style of valve chamber. The Gardner Governor is made to fit any style or make of engine.

STANDARD GOVERNORS

Size.....inches	1¼	1½	2	2¼	2½	3	3½	4
Class A, Plain...each	24.50	29.50	36.00	42.00	48.00	59.00	71.00	83.00
" A, Finished "	27.50	33.50	40.00	47.00	53.00	67.00	80.00	93.00
" B, Plain... "	21.00	25.00	30.00	35.00	40.00	50.00	60.00	71.00
" B, Finished "	24.00	29.00	34.00	40.00	45.00	58.00	69.00	81.00
Size.....inches	4½	5	6	7	8	9	10	12
Class A, Plain...each	96.00	109.00	140.00	170.00	210.00	241.00	270.00	335.00
" A, Finished "	107.00	121.00	154.00	186.00	227.00	261.00	290.00	355.00
" B, Plain... "	83.00	94.00	122.00	150.00	185.00	215.00	240.00	.....
" B, Finished "	94.00	106.00	136.00	166.00	202.00	235.00	260.00	.....

Prices on sizes 13 to 16 inches, inclusive, Class A, will be sent on application.

SPRING GOVERNORS

Size.....inches	½	¾	1	1¼	1½	2	2¼	2½
Class A, Plain.....each	16.50	18.50	21.00	24.50	29.50	36.00	42.00	48.00
" A, Finished... "	18.50	20.50	23.00	27.50	33.50	40.00	47.00	53.00
" B, Plain..... "	14.00	16.00	18.00	21.00	25.00	30.00	35.00	40.00
" B, Finished... "	16.00	18.00	20.00	24.00	29.00	34.00	40.00	45.00
Size.....inches	3	3½	4	4½	5	6	7	.....
Class A, Plain.....each	59.00	71.00	83.00	96.00	109.00	140.00	170.00	.....
" A, Finished... "	67.00	80.00	93.00	107.00	121.00	154.00	186.00	.....
" B, Plain..... "	50.00	60.00	71.00	83.00	94.00	122.00	150.00	.....
" B, Finished... "	58.00	69.00	81.00	94.00	106.00	136.00	166.00	.....

Horizontal type spring governors take the same list as spring Class B governors.

When any doubt exists in your mind as to the size and style of governor most suitable for your engine, give the following information:

Is engine vertical or horizontal? Diameter of cylinder. Length of stroke. Number of revolutions per minute. Diameter of driving pulley on engine. Length of governor shaft. Diameter and length of steam pipe. Diameter and estimated weight of pulley. Dimensions of rim. State purpose for which engine is used.

NASON STEAM TRAPS

CLASS B

Plate E9901

CLASS C

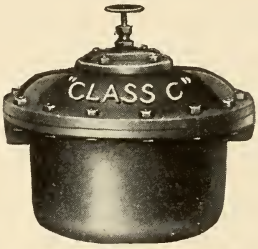


Plate E9902

SIDELUG—Patented

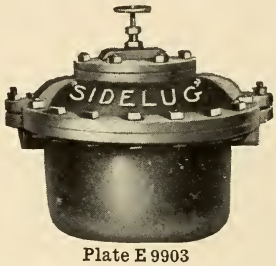


Plate E 9903

Number	1	2	3	4	5
Size of Pipe Connections....inches	½	¾	1	1¼	1½
Discharge per Minute....pounds	4½	6½	10	15½	23
Capacity, Lineal Feet of 1-inch Pipe....	1500	3450	5250	7650	12000
" Square Feet of Direct Radiation....	500	1150	1750	2550	4000
Diameter of Flange....inches	10¾	14¼	15¾	19	24¼
Height over Valve.... "	11	14	16¼	18½	23½
" " Cover.... "	8	10	12	14	15½
Weight, Classes B and C....pounds	40	80	113	176	336
" Sidelug.... "	47	92	125	212	343
Price, Classes B and C....each	16.00	20.00	27.50	42.50	70.00
" Sidelug.... "	16.85	21.30	29.25	45.50	74.75

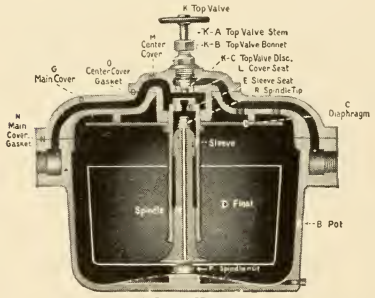


Plate E9904

Class B is designed for low pressure service, not exceeding 20 pounds pressure. Class C is designed for medium service for pressures between 20 and 70 pounds.

The Sidelug Trap embodies the Nason principles, is heavier in construction, and in addition has extension lugs over the inlet and outlet ports to obviate the blowing out of gasket at these points. For pressures between 40 and 150 pounds.

REPAIRS

In ordering repairs be particular to note what style of trap they are for.

Number of Trap....	1	2	3	4	5
Price, K —Top Valve....each	1.00	1.40	1.60	2.00	2.10
" KA— " " Stem only.... "	.50	.60	.70	.70	1.00
" KB— " " Bonnet only.... "	.35	.40	.45	.45	.65
" KC— " " Disc " .... "	....	....	....	....	1.00
" M—Center Cover.... "	....	....	....	3.50	4.00
" G—Main " .... "	2.40	3.60	5.00	8.20	15.60
" N— " " Gasket.... "	.25	.40	.60	1.20	1.70
" L—Cover Seat.... "	.40	.40	.60	.70	.80
" E—Sleeve " .... "	.30	.40	.50	.60	.70
" C—Diaphragm.... "	.30	.50	.60	1.20	1.60
" F—Sleeve.... "	1.20	1.60	2.00	2.70	4.50
" H—Spindle.... "	1.00	1.40	1.70	2.50	3.50
" B—Pot.... "	3.00	4.50	7.00	10.50	18.80
" D—Float.... "	.80	1.00	1.00	2.00	2.50
" P—Spindle Nut.... "	.30	.30	.30	.40	.40
" R— " Tip (No. 5 only detachable). "	....	....	....	....	.80

WRIGHT STEAM TRAPS

EMERGENCY TRAPS FOR HIGH PRESSURE

EXTERIOR

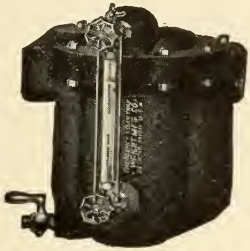
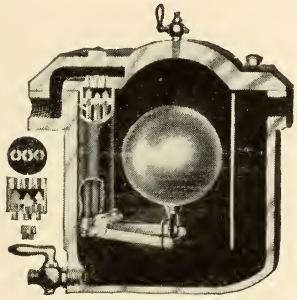


Plate E9911

Emergency Steam Traps are guaranteed on all steam pressures up to 200 pounds. Keep the steam lines automatically and continually drained of condensation regardless of small flow or floods.

SECTIONAL



The action of this trap in emergencies is instantaneous, a feature which renders it invaluable for many uses. It has gained an enviable reputation for efficiency and general excellence.

No.	Cap. Lin. Feet 1-in. Pipe	Capacity Square Feet Rad.	*Max. Discharge per Hr. Lbs.	Inlet and Outlet Inches	Price Each
1	7200	2400	997	½	**26.50**
2	9300	3100	1262	¾	**28.50**
3	11400	3900	1550	1	**36.00**
4	19710	6570	2625	1¼	**43.00**
5	31500	10500	4200	1½	**60.00**
6	50250	16750	6700	2	**82.00**
7	73050	24350	9740	2½	**132.00**
8	105000	35065	14026	3	**150.00**

*For one valve.

VICTOR TRAPS FOR LOW PRESSURE

EXTERIOR

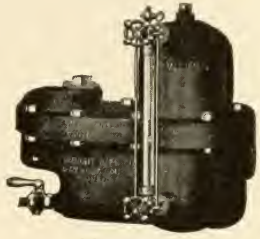
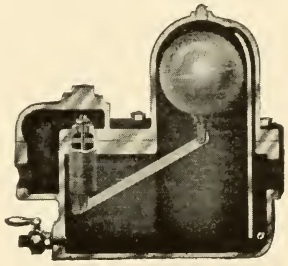


Plate E9912

Victor Steam Trap for low pressure operates perfectly for pressure 0 to 20 pounds. Operates continuously, not intermittently. Guaranteed to discharge floods of condensation without steam waste.

SECTIONAL



The valve opening in this trap is as large porportionately as the pipe connections at inlet and outlet. Through use of a valve of large area, the Victor is able to handle an immense amount of condensation, as much, in fact, as the inlet pipe can bring into it.

No.	*Discharge Lbs.	†Cap. Square Feet	Inlet and Outlet	Height Over All	Price Each
0	1726	1432	½	9¼	**22.00**
1	3746	3107	½	11¼	**26.50**
2	6552	5438	¾	12½	**28.50**
3	9988	8290	1	14½	**36.00**
4	18000	14940	1¼	15¼	**43.00**
5	2·000	19920	1½	17½	**60.00**
6	30000	24900	2	20	**82.00**
7	48250	40000	2½	21	**132.00**
8	63918	53050	3	22	**150.00**

*Discharge per hour, 3 pounds pressure.

†Square feet of radiating surface.

DETROIT STEAM TRAPS

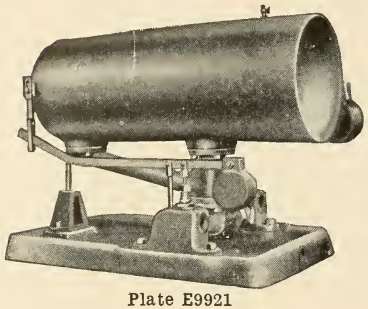


Plate E9921

NON-RETURN OR SEPARATING TRAPS

The Detroit Non-Return or Separating Traps are perfectly adapted to draining oil and steam separators, bleeding high or low pressure headers, draining receivers between high and low pressure cylinders in compound engine installations, etc; in fact, any service within their capacity in rubber plants, paper mills, power plants; heating, drying and cooking apparatus, vacuum pans and triple effects in salt works, sugar refineries, etc.

Non-return traps must, in every case, be below the level of the apparatus to be drained.

Number	10	11	12	13	14
Capacity, Square Feet of Direct Radiation	5500	8350	16600	27750	36000
" pounds of Water per hour	2040	3680	4800	7000	11500
Size of Inlet ..... inches	¾	1	1¼	1½	2
" " Outlet ..... "	¾	1	1¼	1½	2
Shipping Weight ..... pounds	275	325	425	500	700
Price ..... each	**80.00**	**100.00**	**125.00**	**150.00**	**180.00**

Prices do not include swing check valve, globe valves, gate valve or pipe fittings. Such items, when furnished by us, are extra.

NOTE.—Always mention pressure carried—*this is important* and should be specified on all inquiries and orders.

VACUUM, RETURN AND COMBINATION TRAPS

Whenever it is necessary to have a vacuum on a heating system, the vacuum trap is used. This means the condensation is handled hot without steam binding, oil troubles, and at a low cost.

Return Traps are used to automatically return the condensation direct to the boilers without the loss of any of its heat units. These traps are used on either high or low pressure.

If the system is such that there are variable pressures such as exhaust, the day time and live steam at night, the combination trap is used to automatically handle the condensation.

RETURN TRAP

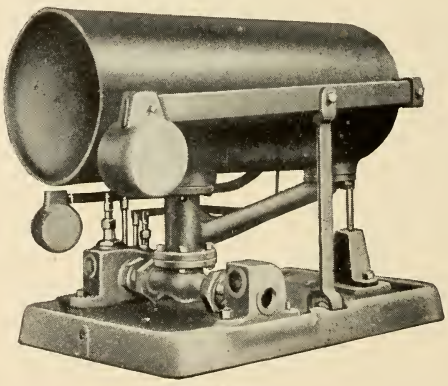


Plate E9922

Number	10	11	12	13	14	15	16
Capacity, Sq. Ft. of Direct Radiation	3200	5000	8300	13300	25000	40000	73500
" Pounds of Water per Hour	960	1500	2500	4000	7500	12000	22000
Size of Inlet ..... inches	¾	1	1¼	1½	2	2½	3
" " Outlet ..... "	¾	1	1¼	1½	2	2½	3
Shipping Weight .... pounds	275	325	425	500	700	900	1000
Price ..... each	**100.00**	**120.00**	**150.00**	**200.00**	**270.00**	**350.00**	**450.00**

Prices include two check valves, but no fittings.

AUSTIN CAST IRON STEAM SEPARATORS

STANDARD PATTERNS

For 250 Pounds Steam Working Pressure

They separate the moisture and slugs of water from live steam, insuring a higher efficiency in the engine, with a minimum fuel and lubricant expense, together with insurance against cylinder explosions.

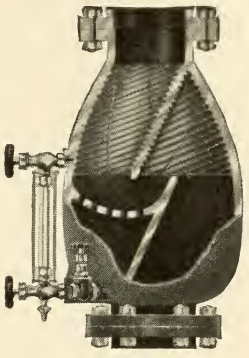


Plate E9931

VERTICAL

This is, without question, one of the most perfect separators ever devised for taking water out of live steam. When installed above the throttle of an engine, with a good steam trap of ample size to fully drain the receiving chamber, it furnishes steam that is better than 99 per cent dry, and in some tests as high as 99.6 has been attained. Since first introduced, there has been no material modification in the design of this machine, which in itself proves the correctness of the principles upon which it is constructed. Equal results with upward or downward flow of steam.

Plate E9932

HORIZONTAL

The principle upon which the horizontal is designed is known as an undershot construction. By this is meant that the steam, after being impinged against a baffle plate, passes around under the baffle plate to the outlet. The main feature contributing to the successful operation of this form of separator is that the baffle plate is not set at right angles to the entering steam current, but is set at an angle so that when the steam is impinged against it the particles of water rebound at an opposite angle. This sets up a rotating motion in the steam, bringing the latter in contact with the inside walls of the separator. These walls are heavily corrugated, as is also the surface of the baffle plate, and all corrugations are designed so as to carry the drainage out of and away from the course of the steam. Additional baffles in the well or receiver of the separator serve to separate any oil or water not caught by the upper baffles and further to prevent the steam current from picking up the oil and water in the receiver as it passes. Can be connected either right or left-hand.

Size.....inches	1½	2	2½	3	3½	4	4½
Diameter of Flanges..... "	Screwed	Screwed	7	7½	8½	9	9¼
Face to Face, Fig. A, Vertical..... "	11	11	13	15¼	16¾	18	20
" " " " B, Horizontal... "	9	9	13¼	15¼	16	18¼	19¼

Size.....inches	5	6	7	8	10	12	*14
Diameter of Flanges ..... "	10	11	12½	13½	16	19	21
Face to Face, Fig. A, Vertical..... "	22¼	25¼	28½	31½	37	40¼	....
" " " " B, Horizontal.... "	20¾	24¼	27¼	30¼	31	36	39

*Fig. A not made in 14-inch size.
Prices upon application.

KIELEY STEAM SEPARATORS AND GREASE EXTRACTORS

NEW CENTURY STEAM SEPARATOR
HORIZONTAL

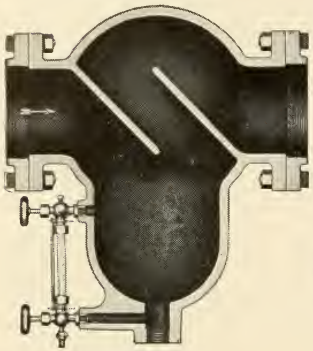


Plate E9941

VERTICAL

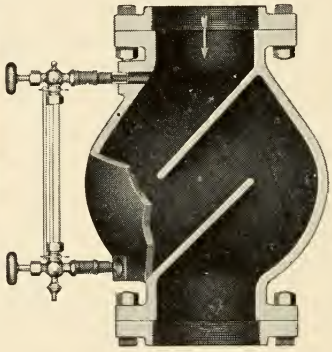


Plate E9942

1906 OIL AND GREASE EXTRACTOR

Plate E9943

NEW CENTURY STEAM SEPARATORS

These separators are very compactly built, giving economy of space with minimum weight, and at the same time are so constructed as to secure high attainable efficiency in separating and removing water which is found entrained with steam, intercepting same into a chamber which does not present an excessive amount of condensation surface.

Size ..... inches	2	2½	3	3½	4	4½
Diameter of Flanges ..... "	6	7	7½	8½	9	9¼
Face to Face, Horizontal Type... "	11¾	11¾	14¼	14¼	16	16
" " " Vertical " ... "	11 7/16	11¼	13¾	13 9/16	16⅛	16⅛
Price ..... each	**30.00**	**35.00**	**45.00**	**55.00**	**64.00**	**75.00**

Size ..... inches	5	6	7	8	10	12
Diameter of Flanges..... "	10	11	12½	13½	16	19
Face to Face, Horizontal Type... "	17½	18	18 3/16	21⅜	22½	25½
" " " Vertical " ... "	17¼	18	18	18¼	19	20
Price ..... each	**83.00**	**104.00**	**120.00**	**145.00**	**200.00**	**250.00**

Prices for vertical type of New Century Steam Separator are same as horizontal type. Price includes companion flanges and bolts and set of water gauges complete.

1906 OIL AND GREASE EXTRACTORS

These extractors are for service where exhaust steam is used for heating or other purposes. They contain larger grease impinging features. A strong feature of these extractors is that there is an absolute minimum of back pressure caused, as each extractor of a given size is sufficiently large to permit of a free and unobstructed flow of steam free from all impurities.

Size ..... inches	2	2½	3	3½	4	4½	5	6
Diameter of Flanges..... "	6	7	7½	8½	9	9¼	10	11
Face to Face..... "	9¾	9¾	10¼	10¼	12⅛	12¾	12¾	15
Price ..... each	**30.00**	**35.00**	**45.00**	**55.00**	**64.00**	**75.00**	**83.00**	**104.00**

Size ..... inches	7	8	9	10	12	14	16	18
Diameter of Flanges..... "	12½	13½	15	16	19	21	22¼	23½
Face to Face..... "	14⅛	19⅜	19⅜	19¼	21¾	21¾	24¾	24½
Price ..... each	**120.00**	**145.00**	**165.00**	**200.00**	**250.00**	**375.00**	**475.00**	**600.00**

Extractor can be made for vertical pipe as well as horizontal. Price includes companion flanges and bolts.

STEAM AND OIL SEPARATORS

VICTOR STEAM SEPARATORS

HORIZONTAL

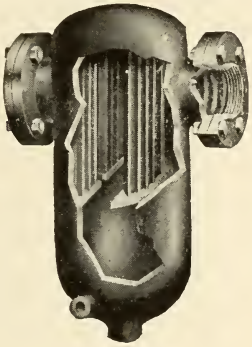


Plate E9951

VERTICAL

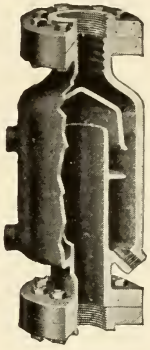


Plate E9952

HORIZONTAL AND VERTICAL STEAM SEPARATORS

Effectively trap and remove suspended and entrained water from live steam, separate and remove oil and grease from exhaust steam. Remove grit, sand, silt, scale, etc., from compressed air and gases, prevent blistering and weakening boiler plates caused by the accumulation of oil in boilers; prevent foaming of boilers, arrest slugs of water and prevent their passage into the engine cylinder, thus saving expensive accidents.

Size.....inches	2	2½	3	3½	4	4½
Face to Face, Horizontal.....inches	9	12¼	12¼	14¼	14¼	15
" " " Vertical..... "	15½	18½	18½	22	22	25½
Diameter of Flanges..... "	6	7½	7½	9	9	10
Price.....each	40.00	50.00	50.00	70.00	70.00	80.00

Size.....inches	5	6	7	8	9	10
Face to Face, Horizontal.....inches	15	19	21	21	24¾	24¾
" " " Vertical..... "	25½	27½	28¼	30¼	44	44
Diameter of Flanges..... "	10	11	13½	13½	16	16
Price.....each	80.00	110.00	160.00	160.00	220.00	220.00

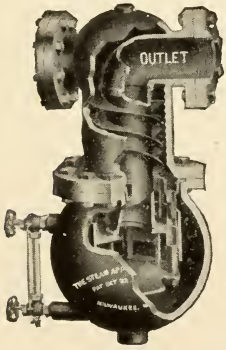


Plate E9953

TRIUMPH OIL SEPARATORS

Size.....inches	2	3	3½	4	4½	5
Face to Face....inches	9¼	10½	13	13	13½	13½
Center of Inlet or Outlet to Bottom of Drain, in.	19½	21	31	31	34	34
Price.....each	90.00	100.00	125.00	125.00	160.00	160.00

Size.....inches	6	7	8	9	10	.....
Face to Face....inches	16¼	19	19	23	23	.....
Center of Inlet or Outlet to Bottom of Drain, in.	36	44	44	48	48	.....
Price.....each	180.00	300.00	300.00	400.00	400.00	.....

Larger sizes on application.

CAST IRON BASINS

BLOW-OFF, GRAVEL AND CATCH

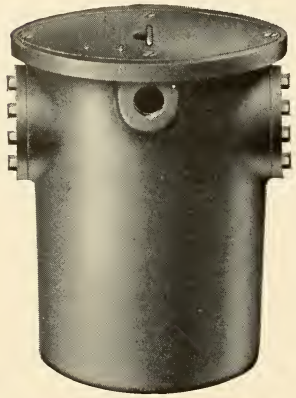


Plate E9961

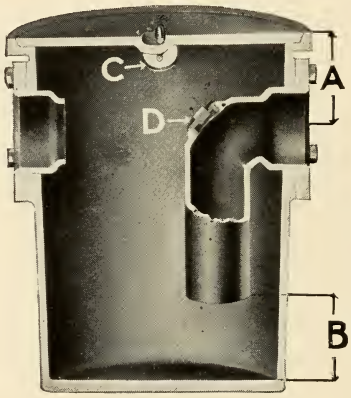


Plate E9962

All blow-off gravel and catch basins are made with straight run only. Prices on other styles on application.

DIMENSIONS

A—6¾ inches on all basins with 4-inch outlet and 8 inches on all basins with 6-inch outlet.

B—6 inches on all basins.

C—2-inch vent on all catch basins, 4 inches on all blow-off basins up to 42 inches; and 6 inches on all larger sizes. No vent on gravel basins.

D—2-inch brass cleanout.

Dimensions and Prices Applying to All Basins

Diameter...	18	18	18	18	18	18	18	18	24	24	24
Depth	18	24	30	36	42	48	54	60	30	36	42
Price.....	**20.00**	**25.00**	**30.00**	**35.00**	**40.00**	**45.00**	**50.00**	**55.00**	**40.00**	**50.00**	**60.00**
Diameter...	24	24	24	24	24	24	24	24	30	30	30
Depth	48	54	60	72	84	96	108	120	30	36	42
Price.....	**70.00**	**80.00**	**90.00**	**110.00**	**130.00**	**150.00**	**170.00**	**190.00**	**50.00**	**60.00**	**70.00**
Diameter...	30	30	30	30	30	30	30	30	36	36	36
Depth	48	54	60	72	84	96	108	120	36	42	48
Price.....	**80.00**	**90.00**	**100.00**	**120.00**	**140.00**	**160.00**	**180.00**	**200.00**	**70.00**	**80.00**	**90.00**
Diameter...	36	36	36	36	36	36	36	36	36	42	42
Depth	54	60	72	84	96	108	120	132	144	42	48
Price.....	**100.00**	**110.00**	**135.00**	**160.00**	**185.00**	**210.00**	**235.00**	**260.00**	**285.00**	**90.00**	**100.00**
Diameter...	42	42	42	42	42	42	42	42	42	48	48
Depth	54	60	72	84	96	108	120	132	144	48	54
Price.....	**110.00**	**120.00**	**150.00**	**180.00**	**210.00**	**240.00**	**270.00**	**300.00**	**330.00**	**130.00**	**140.00**
Diameter...	48	48	48	48	48	48	48	48	48	....	....
Depth	60	66	72	84	96	108	120	132	144	....	....
Price.....	**150.00**	**160.00**	**170.00**	**210.00**	**250.00**	**290.00**	**333.00**	**370.00**	**410.00**	....	....

If flanged connections are required a reducing fitting is furnished at the following additional prices.

Size, Connection	4-inch	6-inch
Price, Faced ..... each	**7.25**	**9.00**
" Faced and Drilled	**8.10**	**10.40**

WADE CATCH BASINS, ETC.

No. 33 EXTRA HEAVY FLUSHING CLEANOUT AND BLOW-OFF CATCH BASIN

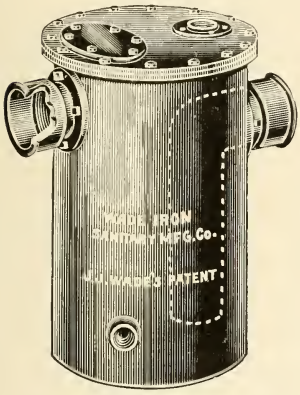


Plate E9971

Pressure water should always be connected to flush jet to clean interior of fittings and drain.

No. 27 FLUSHING CLEANOUT WATER JACKET GREASE CATCH BASIN

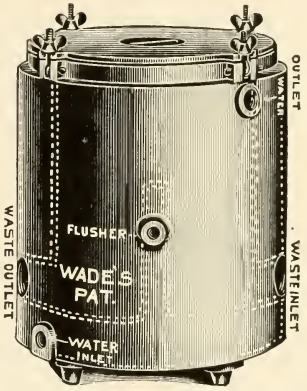


Plate E9972

No. 33 EXTRA HEAVY FLUSHING CLEANOUTS AND BLOW-OFF CATCH BASINS

Hub for 4 or 6-inch extra heavy cast, wrought or vitrified sewer pipe.

Diameter.....inches	16	20	20	24	24	24	24	30
Depth..... "	30	26	30	30	36	42	48	36
Price.....each	34.00	34.00	38.00	42.00	46.00	50.00	54.00	55.00
Diameter.....inches	30	30	30	36	36	36	36	.....
Depth..... "	48	60	72	36	48	60	72	.....
Price.....each	60.00	70.00	90.00	70.00	80.00	95.00	110.00	.....

No. 27 FLUSHING CLEANOUT WATER JACKET GREASE CATCH BASINS

The most important feature of these traps is the chilling chamber or jacket surrounding the body of the trap through which the cold water supply is conducted. When water is drawn at the kitchen sink a fresh supply of cold water enters the jacket.

	Dimensions, Inches				Waste Water Connection	Pressure Water Connection	
No.	Inside Diam.	Outside Diam.	Inside Depth	Outside Depth	Inches	Inches	Price Each
1	10	13	12	15	2	¾	22.00
2	12½	16	13½	17	2	¾	35.00
3	16	20	20	33	3	1¼	60.00
4	20	25	22	28	3	1¼	75.00

FLUSHING CLEANOUT GREASE TRAPS

No. 25, WITHOUT TRAPPED SEAL PIPE

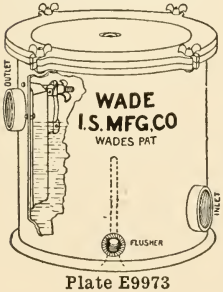


Plate E9973

These traps have hinge door deep water seal trap which prevents grease from passing out. This door is machine faced and kept tight with thumbscrew and clamp and is absolutely water and gas-tight.

Size, Inlet and Outlet..inches	1½	2
Price, No. 25, without Trapped Seal Pipe..each	10.00	12.00
Price, No. 26, with Trapped Seal Pipe.....each	11.00	12.50

No. 26, WITH TRAPPED SEAL PIPE

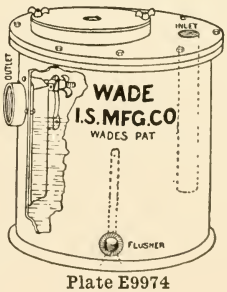


Plate E9974

BRASS AND IRON BODY EXPANSION JOINTS

BRASS

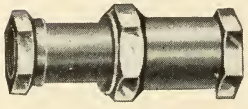


Plate E9981

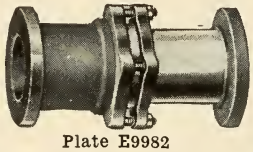


Plate E9982

IRON BODY

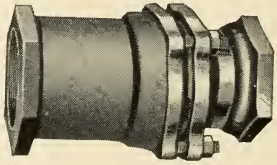


Plate E9983

BRASS—SCREWED, STANDARD TRAVERSE

Size.....inches	½	¾	1	1¼	1½	2	2½	3
Traverse.....inches	2	2¼	2¼	2¼	2¼	2½	2½	2¾
Price.....each	1.50	2.20	2.75	4.00	5.00	8.00	17.50	24.00

BRASS—SCREWED, SPECIAL TRAVERSE

Traverse	Size.....inches	½	¾	1	1¼	1½	2	2½
4 inches	Price.....each	3.80	4.00	4.90	6.30	7.40	9.10	....
6 "	" ..... "	....	8.25	9.00	10.00	11.50	13.50	24.00
8 "	" ..... "	....	9.00	10.00	11.25	13.00	15.50	27.00
10 "	" ..... "	....	9.75	11.00	12.50	14.50	17.50	30.00
12 "	" ..... "	....	10.50	12.00	13.75	16.00	19.50	33.00

IRON BODY—SCREWED, STANDARD TRAVERSE

Size..inches	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
Traverse..in.	2½	2½	2¾	3	3¼	3½	4	5	6	7	7	7	8
Price...each	7.00	8.00	10.00	14.00	18.00	30.00	38.00	45.00	70.00	100.00	110.00	160.00	225.00

IRON BODY—SCREWED, SPECIAL TRAVERSE

Traverse	Size.....inches	2	2½	3	3½	4	4½	5	6	7	8
6 inches	Price .....each	11.00	13.00	17.50	25.00	30.00	40.00	45.00	55.00	.....	.....
10 "	" ..... "	16.00	19.00	25.00	35.00	42.00	52.00	62.00	80.00	100.00	140.00
12 "	" ..... "	18.50	22.00	29.00	40.00	48.00	60.00	70.00	92.50	115.00	160.00
14 "	" ..... "	21.00	25.00	33.00	45.00	54.00	67.00	78.00	105.00	130.00	.....
16 "	" ..... "	23.50	28.00	37.00	50.00	60.00	75.00	86.00	117.50	145.00	.....
18 "	" ..... "	26.00	31.00	41.00	55.00	66.00	.....	94.00	130.00	.....	.....

IRON BODY—FLANGED, STANDARD TRAVERSE

Size.....inches	2	2½	3	3½	4	4½	5	6
Traverse.....inches	2½	2½	2¾	3	3¼	3½	4	5
Diameter of Flanges..... "	6	7	7½	8½	9	9¼	10	11
Price.....each	15.00	16.00	18.50	25.00	30.00	40.00	48.00	55.00

Size.....inches	7	8	9	10	12	14	15	16
Traverse.....inches	6	7	7	7	8	10	10	10
Diameter of Flanges..... "	12½	13½	15	16	19	21	22¼	23½
Price.....each	80.00	110.00	120.00	175.00	250.00	500.00	550.00	600.00

IRON BODY—FLANGED, SPECIAL TRAVERSE

Traverse	Size....in.	2	2½	3	3½	4	4½	5	6	7	8	10	12
6 in.	Price, each	18.00	20.00	25.00	35.00	40.00	50.00	55.00	65.00	.....	.....	.....	.....
10 "	" "	23.00	26.00	32.50	45.00	52.00	63.00	72.00	90.00	112.00	150.00	225.00	300.00
12 "	" "	25.50	29.00	36.50	50.00	58.00	70.00	80.00	102.50	127.00	170.00	255.00	350.00
14 "	" "	28.00	32.00	40.50	55.00	64.00	77.00	88.00	115.00	142.00	190.00	285.00	400.00
16 "	" "	30.50	35.00	44.50	60.00	70.00	85.00	96.00	127.50	157.00	210.00	315.00	.....
18 "	" "	33.00	38.00	48.50	65.00	76.00	.....	104.00	140.00	172.00	230.00	350.00	.....

The expansion will average about 2 to 3 inches in 100 feet of pipe.

PENBERTHY AUTOMATIC INJECTORS

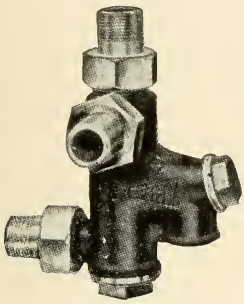


Plate E9991

A high grade automatic machine; meaning, if the current of water is broken by any cause, the injector will pick up the water and re-establish the current to the boiler without the least attention. Every machine is carefully tested, and will work on the following points: Start low, 20 to 22 lbs. steam on 3-foot lift. Work high, 165 to 170 lbs. steam on 3-foot lift. Lift water, 20 to 24 feet on 60 to 80 lbs. steam. Will deliver water to boiler at 160 to 212 degrees, according to temperature of feed water and steam pressure. Water 200 to 212 degrees can always be delivered at nearly all pressures over 50 lbs. by throttling suction valve and delivering minimum capacity. It is advisable in many cases to install an injector large enough so that the supply can be cut down and attain this result, thereby saving fuel. By placing a short piece of pipe having a stopcock, in the overflow, and closing after the injector has started, water 8 to 10 degrees hotter can be handled, but the injector is rendered non-automatic while the stopcock is closed.

Size	Price Each	H. P. Based on Ordinary Tubular Boiler	H. P. Based on 30 Lbs. Water per H. P. per Hour	Pipe Connections Inches	Gallons per Hour 1 to 3-ft. Lift, 60 to 110 Lbs. Steam Pressure	
					Max.	Min.
O	15.00	3 to 6	4 to 8	1/4	60	35
OO	16.00	4 " 8	6 " 12	3/8	80	45
A	18.00	8 " 16	10 " 20	1/2	135	70
AA	20.00	12 " 22	15 " 30	1/2	180	100
B	25.00	17 " 32	22 " 45	3/4	260	140
BB	30.00	20 " 45	25 " 60	3/4	360	180
C	40.00	40 " 65	45 " 80	1	475	250
CC	45.00	45 " 80	50 " 100	1	600	325
D	55.00	50 " 100	60 " 135	1 1/4	800	425
DD	60.00	75 " 135	85 " 165	1 1/4	1000	525
E	75.00	100 " 180	125 " 235	1 1/2	1400	740
EE	90.00	115 " 255	150 " 320	1 1/2	1900	850
F	110.00	160 " 320	200 " 400	2	2400	1275
FF	125.00	200 " 400	250 " 500	2	3000	1600
G	150.00	300 " 500	325 " 600	2 1/2	3600	1875
GG	200.00	375 " 600	400 " 750	2 1/2	4200	2150

REPAIR PARTS

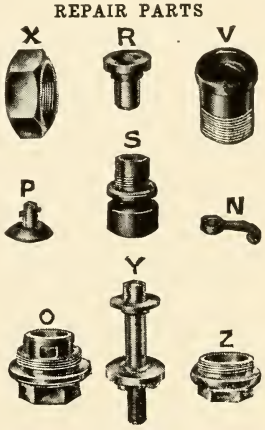


Plate E9992

REPAIR PARTS

Size of Injector....	O OO	A AA	B BB	C CC	D DD	E	EE	F	FF	G GG
R—Steam Jet...each	.25	.35	.45	.55	.65	.75	.75	.85	1 00	2.00
S—Suction Jet.. "	.25	.35	.45	.55	.65	.75	.75	.85	1 00	3 00
Y—Delivery Jet. "	1.25	1.50	2.00	2.50	3.00	3.75	4.50	5.50	6.50	9.00
X—Coupling Nut "	.25	.30	.40	.50	.60	1.25	1.25	1.50	1.50	2.00
V—Tail Pipe.... "	.25	.30	.40	.50	.60	.80	.80	1.00	1.00	1.25
Z—Overflow Cap "	.30	.40	.50	.60	.70	.80	.80	.90	.90	1.50
P— " Valve "	.40	.50	.60	.75	.90	1.00	1.10	1.25	1.25	1.75
N— " Hinge "	.10	.10	.15	.15	.15	.20	.20	.20	.20	.30
O—Plug..... "	.60	.80	1.00	1.25	1.50	1.75	1.75	2.00	2.00	4.00
Strainer..... "	.40	.45	.50	.55	.60	.75	.75	1.00	1.00	1.50

Extra parts furnished for injectors numbered above 21000 without returning it to factory. In ordering parts do not fail to give serial letter and number, which will be found on top of overflow. In referring to or ordering parts, designate them by letter or name as per above.

U. S. AUTOMATIC INJECTORS

REGULAR STYLE

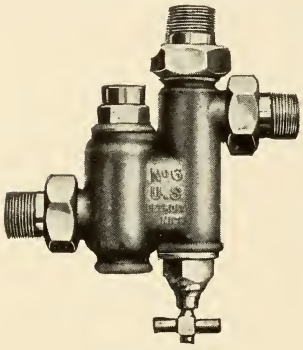


Plate E10001

The regular style goes on either side of the boiler. Special styles to fit any condition of piping can be furnished. A distinctive feature is the drip cock (see illustration) which has the following special advantages:

It drains the injector when not in use and thus prevents freezing.

By leaving it open you can start injector even though the check valve leaks. This is impossible without a drip cock. By opening the drip cock you can start up with lower steam. By leaving it open, when not in use, it prevents the suction pipe from getting hot or the jet from lining up when the steam or check valve leaks. It enables you to take hot water out of a hot suction pipe on a long lift. It is always handy for drawing hot water for any purpose when the injector is working.

REPAIR PARTS

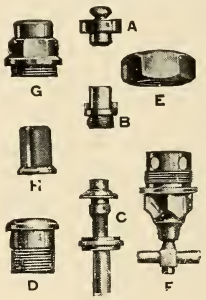


Plate E10002

No.	Price Each	H. P., Based on Ordinary Tubular Boiler	H. P., Based on 30 Lbs. Water per H. P. per Hour	Pipe Connections, Inches			Capacity Gallons per Hour	
				Steam	Suction	Discharge	Maximum	Minimum
00	13.00	1 to 3	1 to 4	1/4	1/4	1/4	36	20
0	14.00	3 " 6	4 " 8	3/8	3/8	3/8	65	35
1	16.00	4 " 8	6 " 12	3/8	3/8	3/8	90	55
2	18.00	8 " 16	10 " 20	1/2	1/2	1/2	135	65
3	20.00	12 " 22	15 " 30	1/2	1/2	1/2	180	100
4	25.00	17 " 32	22 " 45	3/4	3/4	3/4	260	140
5	30.00	20 " 45	25 " 60	3/4	3/4	3/4	355	170
6	40.00	40 " 65	45 " 80	1	1	1	475	300
7	45.00	45 " 80	50 " 100	1	1	1	600	350
8	55.00	50 " 100	60 " 135	1 1/4	1 1/4	1 1/4	800	425
9	60.00	75 " 135	85 " 165	1 1/4	1 1/4	1 1/4	1000	525
10	75.00	100 " 180	125 " 235	1 1/2	1 1/2	1 1/2	1400	800
11	90.00	115 " 255	150 " 320	1 1/2	1 1/2	1 1/2	1900	950
12	110.00	160 " 320	200 " 380	2	2	2	2400	1300
13	125.00	200 " 400	250 " 500	2	2	2	3000	1600
14	150.00	300 " 500	325 " 550	2	2	2	3600	2000
15	175.00	350 " 550	400 " 600	2 1/2	2 1/2	2 1/2	4000	2200
16	200.00	400 " 600	500 " 750	2 1/2	2 1/2	2 1/2	4500	2500
17	300.00	550 " 900	600 " 1000	3	3	3	6000	3000

REPAIR PARTS

Size of Injector.....No.	00 to 3	4 and 5	6 and 7	8 and 9	10 and 11	12 to 14
D—Tail Pipe.....each	.30	.35	.40	.50	.75	1.00
E— " " Nut..... "	.30	.40	.50	.65	.85	1.20
A—Steam Jet ..... "	.80	1.00	1.15	1.35	1.60	2.00
B—Suction Jet..... "	.50	.75	1.25	1.50	1.75	2.00
C—Delivery Tube..... "	1.00	1.10	1.45	1.75	2.00	2.50
F— " Cap..... "	1.00	1.10	1.45	1.75	2.00	2.50
G, H Overflow Cap and Valve "	.80	.95	1.00	1.25	1.50	2.00

In ordering U. S. Injector Parts, always give size and shop number, and specify the parts by the names given above; use no other terms.

PENBERTHY "XL-96" IMPROVED EJECTORS

Lifts 22 to 25 Feet. Elevates 25 to 100 Feet, 30 to 100 Pounds Pressure

Plate E10011

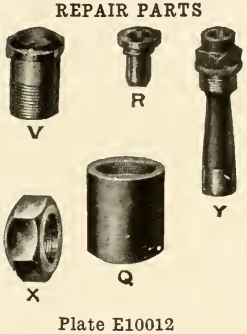


Plate E10012

The lifting and elevating power is so combined in the "XL-96" Ejector as to make it unquestionably the best device of its kind. The principle and power contained in so small, handy and economical an instrument, continually suggests new uses, which often demand that the tubes of the ejector be proportioned particularly for the service. We have perfected and can furnish special ejectors singularly efficient in the work for which they are designed.

No.	Steam Connection Inches	Suction and Discharge Inches	Capacity, Gallons per Hour — 3-Foot Lift — Steam Pressure, Pounds — 40 to 65	3-Foot Lift — 20 to 40 or 65 to 100	50-Foot Elevation — 40 to 65	25-Foot Elevation — 40 to 65	Vertical Lift Feet — 40 to 75	Vertical Lift Feet — 25 to 40 or 75 to 100	Price, Each — Brass	Price, Each — Iron Body Brass Jets
1	3/8	1/2	240	235	120	180	23	20	8.00	.....
2	1/2	3/4	500	450	250	375	25	22	10.00	.....
3	3/4	1	840	700	420	625	25	22	15.00	.....
4	1	1 1/4	1350	1300	650	950	25	22	20.00	.....
5	1	1 1/2	1950	1850	975	1450	25	22	25.00	20.00
6	1 1/4	2	3500	3000	1750	2600	25	22	35.00	27.50
*7	1 1/2	2 1/2	5700	4350	2500	3750	25	22	50.00	40.00
*8	2	3	9500	8160	4750	7200	25	22	70.00	50.00
*9	2	3 1/2	13600	12400	6800	10200	25	22	105.00	70.00
*10	2 1/2	4	18400	17100	9200	13800	25	22	145.00	95.00

Sizes 5 and 6 will be sent in all brass, unless ordered with iron body and brass jets and steam connection.

*Unless ordered in brass, Sizes 7 to 10, inclusive, will be shipped with iron body, brass jets and steam connection.

TABLE SHOWING SIZE OF BOILERS REQUIRED FOR EJECTORS

Number of Ejector.....	1, 2, 3	4, 5, 6	7, 8	9, 10
Size of Boiler .....horse power	2 to 6	8 to 12	15 to 20	25 to 30

REPAIR PARTS

Size Number.....	1	2	3	4	5	6	7	8	9	10
R—Jet .....each	.25	.35	.45	.55	.60	.80	1.00	1.25	1.50	2.00
Y—Delivery Jet ..... "	.80	1.00	1.25	1.50	1.75	2.50	4.00	6.00	8.00	10.00
V—Tail Pipe Brass ..... "	.25	.30	.40	.50	.50	.60	.80	1.00	1.00	1.25
X—Coupling Nut Brass. "	.25	.30	.40	.50	.50	.60	1.25	1.50	1.50	2.00
Strainer ..... "	.45	.50	.55	.60	.75	1.00	1.50	.....	.....	.....
Q—Regular I. P. Coupling ..... "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SPECIAL ACID RESISTING EJECTORS

While the composition used in the regular stock "XL-96" Ejector is very efficient against the milder solutions containing acids, this ejector is made of special anti-acid compositions, which will resist the action of acids as far as it is possible for metal to resist it. Prices on application.

JET PUMPS, BILGE PUMPS AND STRAINERS

BLAKESLEE JET PUMP

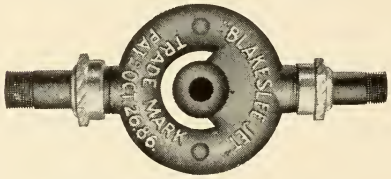


Plate E10021

BLAKESLEE BILGE PUMP

Plate E10022

BLAKESLEE JET PUMPS

For raising water and other liquids. Adapted for tanneries, breweries, creameries, railroad water stations, etc.

Size of Pump.....inches	¾	1	1¼	1½	2	2½	3
Suction Pipe..... "	¾	1	1¼	1½	2	2½	3
Discharge Pipe..... "	½	¾	1	1¼	1½	2	2½
Steam Pipe..... "	⅜	½	½	¾	¾	1	1
Capacity per Minute.....gallons	8	15	20	30	40	50	60
Price.....each	**8.00**	**10.00**	**12.00**	**14.00**	**16.00**	**20.00**	**24.00**

BLAKESLEE BILGE PUMPS

These pumps are adapted to raising a large amount of water with but little steam. They are not designed to raise water to very great heights, but make from eighteen to twenty feet suction. They are designed to do their work altogether by suction, and should be set so that the discharge opening will be on a line with the point of discharge. The water may be conveyed from the pump by a trough, or a discharge pipe may be connected, as desired.

DIRECTIONS.—Connect steam pipe to boiler, with globe valve in a convenient place; run it to suitable place for pump; screw pump to steam pipe by a common thimble; afterwards attach suction and discharge pipe, and the pump is ready for use.

Size of Pump.....inches	1½	2	3	4	6
Suction Pipe..... "	1½	2	3	4	6
Discharge Pipe..... "	1¼	1½	2½	3	4
Steam Pipe..... "	¾	1	1	1¼	1½
Capacity per Hour.....gallons	2400	3000	3600	4500	8000
Price.....each	**10.00**	**14.00**	**16.00**	**20.00**	**30.00**

STRAINERS

For Injectors and Ejectors

PIPE CONNECTION

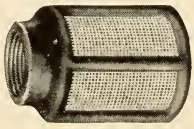


Plate E10023

HOSE CONNECTION

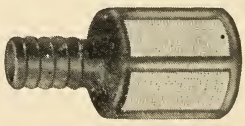


Plate E10024

Size..... inches	½	¾	1	1¼	1½	2	2½	3	4
Price, Union Strainers, All Brass.each	**4.00**	**5.00**	**6.00**	**7.50**	**9.00**	**12.00**	....	....	....
" Flat " " " "	**.35**	**.40**	**.50**	**.60**	**.75**	**1.00**	**1.50**	**2.00**	**2.50**
" for Hose or Pipe..... "	**.40**	**.50**	**.60**	**.75**	**1.00**	**1.50**	**2.00**	**2.50**	....

MARSH
AUTOMATIC FEED PUMP AND RECEIVER

WITH FLOAT GOVERNOR

BRONZE FITTED FOR EXTREME HOT WATER

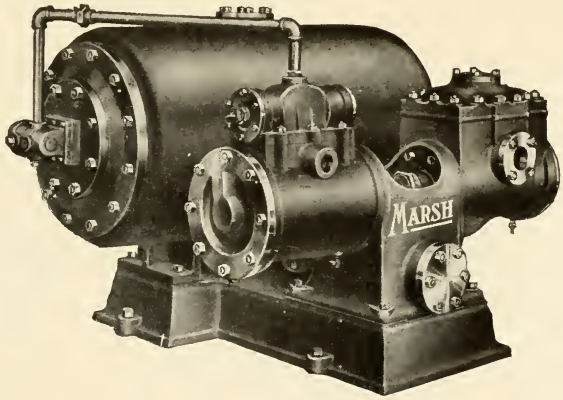


Plate E10031

Size	Cylinders Inches		Stroke Inches	Pipe Connections, Inches				Drainage Capacity		Weight Pounds	Price Each
	Steam	Water		Steam	Exhaust	Inlet	Delivery	Radiation Square Ft.	1-inch Pipe Lineal Ft.		
B	2½	1⅜	2	¼	⅜	2	½	1000	3000	310	105.00
BB	3	1¾	2½	⅜	½	2	¾	2000	6000	340	125.00
C	4	2⅜	3	⅜	¾	2	¾	3000	9000	600	165.00
D	5	3	3½	½	¾	2	1	4500	13500	650	190.00
E	5	3	6	½	¾	2	1¼	7500	22500	1050	265.00
G	5½	3½	6	¾	1	2	1½	9000	27000	1100	300.00
F	6	3⅝	8	¾	1	2½	2	13000	39000	1150	330.00
FF	6	4	8	¾	1	2½	2	15000	45000	1160	350.00
H	7	4	8	1	1¼	2½	2	16600	50000	1220	375.00
I	8	5	10	1	1½	3½	2½	27000	81000	3080	590.00
L	10	6	12	1¼	1½	4	3	40000	120000	3200	675.00
M	12	7¼	12	1½	2	5	4	65000	195000	3390	800.00
MM	12	8	12	1½	2	5	4	70000	210000	3400	825.00

Capacity rating above is for direct radiation; where indirect (fan blast) system is used reduce capacities of radiation or pipe two thirds.

MARSH STANDARD BOILER FEED PUMPS

HIGH PRESSURE REGULAR LINE CENTER SUCTION BASE

C-2 TO H

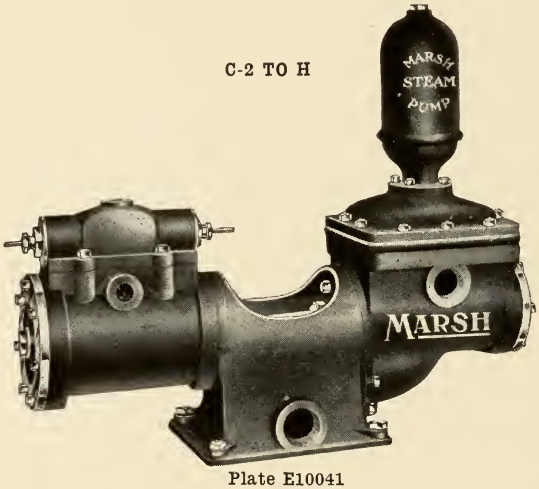


Plate E10041

The illustration above shows Size H boiler feed pump. Capacity rating below is intended to represent maximum service recommended.

In the construction of Marsh Boiler Feed Pumps only the best material and workmanship are employed; the water cylinder lining, valve seats, rod box glands, etc., are of the best phosphor-bronze; the piston rods are of solid bronze, which will not corrode or tarnish, and are so regularly made without extra cost. The pump cylinders, with the exception of the four smaller sizes, are provided with a removable bronze lining that can easily be taken out for reboring or exchange.

Size	Cylinder Inches		Stroke Inches	Pipe Connections Inches				Floor Space Inches	Horse Power	Wt. Lbs.	Price Each
	Steam	Water		Steam	Exhaust	Suction	Delivery				
B	2½	1⅜	2	¼	⅜	¾	½	7 x 14	20	45	30.00
BB	3	1¾	2½	⅜	½	1	¾	8 x 17	35	75	50.00
C	4	2⅜	3	⅜	¾	1¼	¾	10 x 24	60	170	75.00
C-2	4	2½	6	⅜	¾	2	1¼	10 x 32	100	300	100.00
D	5	3	3½	½	¾	1½	1	11 x 26	100	230	100.00
E	5	3	6	½	¾	2	1¼	10 x 32	150	320	125.00
G	5½	3½	6	¾	1	2	1½	12 x 34	200	400	150.00
F	6	3⅝	8	¾	1	2½	2	13 x 37	250	430	180.00
FF	6	4	8	¾	1	2½	2	15 x 39	300	500	200.00
H	7	4	8	1	1¼	2½	2	15 x 39	350	525	225.00
I	8	5	10	1	1½	3½	2½	18 x 48	500	1000	350.00
II	8	5	12	1	1½	4	3	18 x 52	600	1150	375.00
L	10	6	12	1¼	1½	4	3	18 x 52	1000	1200	425.00
M	12	7¼	12	1½	2	5	4	19 x 56	1500	1450	500.00
MM	12	8	12	1½	2	5	4	19 x 56	1650	1550	525.00

Each pump is carefully tested at the factory before sending out, and is properly packed ready to connect up and operate at once.

DETROIT SIGHT-FEED LUBRICATORS

For Traction Engines or for Engines Working in Exposed Places
Also Used on Steam Pumps

ZERO SINGLE CONNECTION

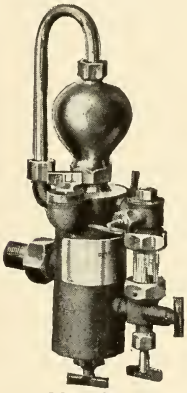


Plate E10051

ZERO DOUBLE CONNECTION

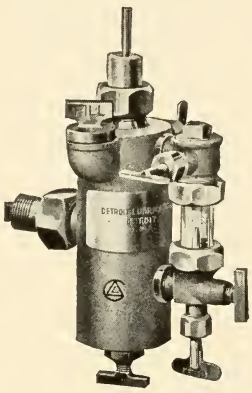


Plate E10052

ZERO IMPROVED DOUBLE CONNECTION

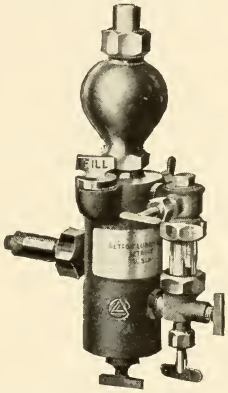


Plate E10053

The Detroit Zero Lubricators have a heating feature consisting of a cored passage through which there is a constant circulation of steam, so that the oil cannot chill and become too stiff to feed properly.

Detroit Zero Lubricators are designed to feed freely in all temperatures. They are strong and sturdy and will stand up under severe usage.

The Zero Single Connection is for use where a double connection lubricator cannot be installed.

The Zero Improved Double Connection Lubricator is intended to have both connections between the boiler and the throttle.

The Zero Double Connection Lubricators are very widely used on such traction and portable engines as have steam pipes suitable for a double connection lubricator. They are also extensively used on steam pumps and on stationary engines, which are exposed more or less to the cold.

The Zero Double Connection Lubricators are furnished in two styles, A and C. On some engines the throttle valve is so located that one connection for the lubricator must be made above, and the other connection below it, while in others there is room enough to make both connections either above or below the throttle. The Style A should be attached with both connections between the boiler and the throttle. The Style C has spray feed feature, and should take steam above the throttle and deliver oil below the throttle, either into steam pipe or top of steam chest. In ordering, state how the attachment is to be made.

ZERO SINGLE CONNECTION

Capacity ..... pints	¼	⅓	½	1	2
Size, Thread ..... inches	½	½	½	½	½
Price, Bronze Finish, Brass Body, Finished Trimmings ..... each	....	....	....	....	....
" Nickel-plated All Over ..... "	....	....	....	....	....

ZERO AND ZERO IMPROVED DOUBLE CONNECTION

Capacity ..... pints	¼	⅓	½	1	2
Size, Thread ..... inches	⅜	⅜	⅜	½	½
Price, Bronze Finish, Brass Body, Finished Trimmings ..... each	....	....	....	....	....
" Nickel-plated All Over ..... "	....	....	....	....	....

Sight-feed glasses, ¾x2⅛ inches.

DETROIT IMPROVED STANDARD SIGHT-FEED LUBRICATORS

DOUBLE CONNECTION

EXTERIOR

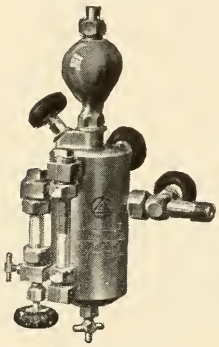


Plate E10061

SECTIONAL

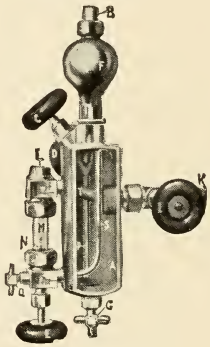


Plate E10062

The Detroit Improved Standard Double Connection Lubricator is a quality product throughout. In it are all the essentials of a perfect lubricator combined in a compact and well balanced design.

The support arm is in two parts. The part containing the globe valve is first screwed into the steam pipe and the lubricator is then coupled to it. This makes attachment easy and, on account of the globe valve, the lubricator can be removed at any time for any purpose without letting down steam. The heating passage from the upper sight-feed arm to the support arm passes directly through the body of the lubricator and, being always filled with steam, keeps the oil constantly warm and in a thoroughly liquid condition. This lubricator is well suited for feeding heavy oils.

Capacity.....pints	⅓	½	1	2	4	8
Size of Thread.....inches	½	½	½	½	¾	¾
Sight-Feed Glass ... "	⅝ x 2 1/16	¾ x 3	¾ x 3	¾ x 3¼	¾ x 3¼	¾ x 3¼
Gauge Glass..... "	⅝ x 2 1/16	⅝ x 3¼	⅝ x 4⅜	⅝ x 4⅜	¾ x 6	¾ x 7¾
Price, Finished.....each	.....	.....	.....	.....	.....	.....
" Nickel-plated .. "	.....	.....	.....	.....	.....	.....

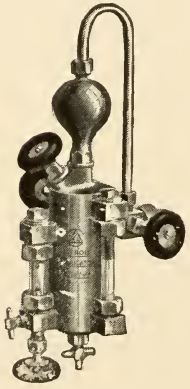


Plate E10063

SINGLE CONNECTION

The Detroit Improved Standard Single Connection occupies the same place among single connection lubricators that the double connection holds among double connection lubricators. It has replaced the Style C lubricator.

It is essentially the same as the double connection lubricator, except that it has an equalizing tube made necessary by the single connection.

The support arm is connected to the body at the center of gravity. On this account the connection holds the lubricator very firmly and vibration is reduced to a minimum.

Capacity .....pints	¼	⅓	½	1	2
Size of Thread ...inches	½	½	½	½	½
Price, Finished ....each	....	....	....	....	....
" Nickel-plated "	....	....	....	....	....

Size of glass, sight-feed, for ¼, ⅓ and ½-pint, ¾ x 2⅛ inches; pint and quart sizes same as double connection lubricators.

Prices on application.

SWIFT SIGHT-FEED LUBRICATORS

CLASS F. S. C.
SINGLE CONNECTION

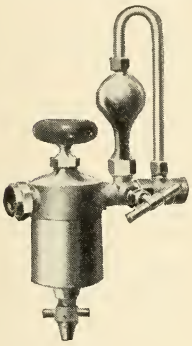


Plate E10071

CLASS G
SINGLE CONNECTION

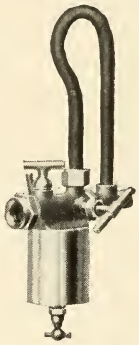


Plate E10072

CLASS F
DOUBLE CONNECTION

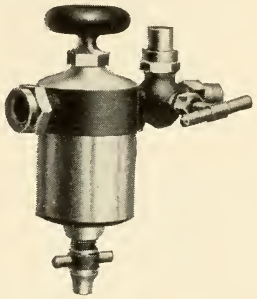


Plate E10073

CLASS M
DOUBLE CONNECTION

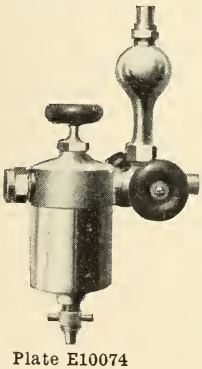


Plate E10074

The lubricating devices illustrated and described on this page are the results of many years experience in this line, and are offered to the public with the fullest confidence that they will meet the most exacting needs of modern practice.

Swift Sight-feed Lubricators have been on the market for 28 years, during which time they have held an unequalled reputation, and upward of 600000 have been made and sold throughout the principal markets of the world. They are adopted and used by a large number of the leading engine and steam pump builders of this and other countries, also by the United States government and many of the largest corporations. Valued patented improvements have been made on them from time to time, and the highest quality of material and workmanship have always been put into their construction.

SINGLE CONNECTION

Capacity .....pints	¼	¼	⅓	½	1	1½	2
Size, Thread.....inches	¼	⅜	⅜	⅜	½	½	½
Price, F. S. C., Finished..each	....	3.50	3.75	4.00	6.00	6.75	7.50
" F. S. C. Nickel-plated... "	....	3.90	4.15	4.40	6.65	7.40	8.15
" G, Finished..... "	2.15	....	2.50	2.90	....	....	....
" G, Nickel-plated .. "	2.50	....	2.85	3.25	....	....	....

DOUBLE CONNECTION

Capacity .....pints	¼	⅓	½	1	1½	2
Size, Thread.....inches	⅜	⅜	⅜	½	½	½
Price, F, Finished.....each	2.75	3.00	3.25	4.65	5.40	6.15
" F, Nickel-plated ..... "	3.15	3.40	3.65	5.30	6.05	6.80
" M, Finished ..... "	....	....	....	5.65	6.40	7.15
" M, Nickel-plated..... "	....	....	....	6.30	7.05	7.80

HAND CYLINDER OIL PUMPS

WITH VALVES

HORIZONTAL

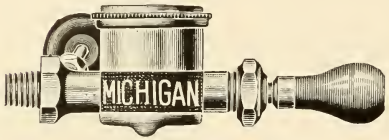


Plate E10081

ANGLE

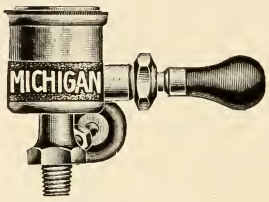


Plate E10082

HORIZONTAL

Number	500	501	502
Capacity ..... pints	1/4	1/2	1
Threaded Iron Pipe ..... inches	3/8	3/8	3/8
Price, Brass Finish ..... each	3.50	5.00	7.50
" Nickel-plated ..... "	4.00	5.65	8.40

ANGLE

Number	503	504	505
Capacity ..... pints	1/4	1/2	1
Threaded Iron Pipe ..... inches	3/8	3/8	3/8
Price, Brass Finish ..... each	3.50	5.00	7.50
" Nickel-plated ..... "	4.00	5.65	8.40

Net extra for strainer in top .15.

ANGLE, WITHOUT VALVES

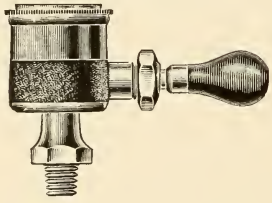


Plate E10083

GLASS BODY

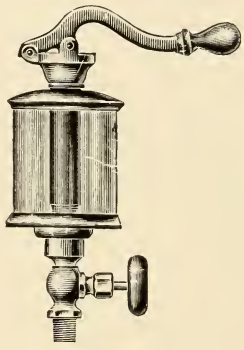


Plate E10084

ANGLE, WITHOUT VALVES

Number	X503	X504	X505
Capacity ..... pints	1/4	1/2	1
Threaded Iron Pipe ..... inches	3/8	3/8	3/8
Price, Brass Finish ..... each	3.50	5.00	7.50
" Nickel-plated ..... "	4.00	5.65	8.40

GLASS BODY

Number	507	508	509	510
Capacity ..... ounces	4	10	16	32
Diameter of Glass Shell ..... inches	2 3/8	3 1/8	3 1/2	4 1/8
Height " " " ..... "	2 1/4	3 5/8	4	5 1/8
Size of Shank ..... "	3/8	1/2	1/2	1/2
Price, Brass Finish ..... each	7.50	10.00	12.00	16.00
" Nickel-plated ..... "	8.50	11.25	13.50	18.00

LUBRICATORS

"OK" SIGHT FEED

ALL BRASS

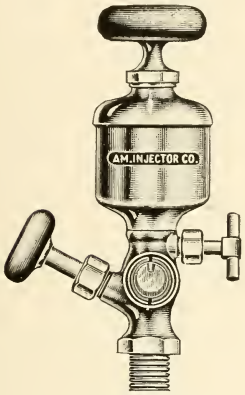


Plate E10091

GLASS BODY

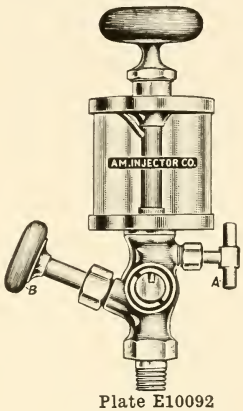


Plate E10092

PLAIN

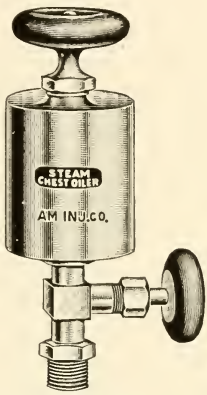


Plate E10093

ALL BRASS

For Gas Engines, Air Compressors, Etc.

This cup is simple and compact and presents an ornamental appearance. Can be filled when engine is running, the shut-off valve being the one below the sight-feed. Sight feed can be easily replaced if broken.

Number	0	1	2	3	4	5	6
Capacity....ounces	1½	2½	3½	4½	6	10	18
Diameter Oil Chamber....inches	1½	1¾	2	2¼	2½	3	3½
Size Thread.... "	⅜	⅜	½	½	½	½	¾
Price, Finished....each	3.50	4.00	5.00	6.00	8.00	10.00	12.00
" Nickel Plated.... "	4.20	5.00	6.00	7.25	9.50	12.00	14.00
" Sight Feed Glasses,extra,per doz.	1.20	1.20	1.20	1.20	1.20	1.20	1.20

GLASS BODY

Glass reservoir enables the operator to observe the quantity of oil in same.

Number	1	2	3	4	5	6
Capacity....ounces	1	2½	4	5	10	Pt.
Outside Diameter of Glass....inches	1½	2	2¼	2½	3	3½
Height of Glass.... "	1⅜	1⅞	2⅛	2⅜	3	4
Size Thread.... "	⅜	⅜	⅜	⅜	½	½
Price, Brass....each	4.00	5.00	6.00	8.00	10.00	12.00
" Nickel Plated.... "	5.00	6.00	7.25	9.50	12.00	14.00
" Glasses, extra.... "	.10	.12	.15	.25	.35	.65

PLAIN

Carefully made and are heavy, strong and nicely finished. The shank and cup are two separate parts screwed together. Broken parts easily replaced. By closing valve in shank cup may be filled while engine is running.

Number	0	1	2	3	4	5	6	7	8
Capacity....ounces	1	1¼	1½	2½	4	5	10	18	24
Diameter....inches	1¼	1½	1¾	2	2¼	2½	3	3½	4
Size Thread.... "	⅜	⅜	½	½	½	½	¾	¾	¾
Price, Wood Handle....each	2.20	2.40	2.60	2.90	3.25	3.75	4.75	7.00	10.00
" Wire " .... "	2.50	2.65	2.90	3.25	3.50	4.00	5.00	7.25	10.25
" with Cock and Tube.. "	3.20	3.40	3.60	3.90	4.25	4.75	5.75	8.00	11.00

GLASS OIL CUPS

SLIDE LEVER, PLAIN

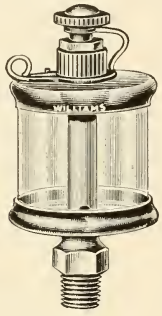


Plate E10101

INDEX LEVER, PLAIN

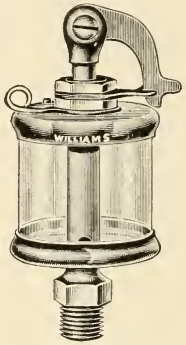


Plate E10102

Number	00	0	1	1½	2	3	4	5	6
Capacity.....ounces	½	⅝	1	1½	2½	4	5	10	18
Outside Diam. of Cup, Slide Lever..inches	1 7/16	1 9/16	2	2	2 1/2	2 1/2	3 1/4	3 3/8	4 3/8
Height of Cup over all, " " .. "	3 1/4	3 3/8	3 7/8	4 1/8	4 9/16	4 13/16	5 1/8	6 1/8	7 1/8
Outside Diam. of Cup, Index " .. "	...	2 9/16	2 9/16	2 9/16	2 9/16	2 13/16	2 15/16	3 5/8	3 15/16
Height of Cup over all, " " .. "	...	3 11/16	4 3/16	4 13/32	4 13/16	5 3/32	5 13/32	6 7/16	7 13/32
Size Thread..... "	1/8	1/8	1/4	1/4	3/8	3/8	3/8	1/2	1/2
Price, Slide Lever Finished.....each	.75	.80	1.00	1.25	1.50	1.90	2.40	3.10	4.00
" Index " " ..... "	....	1.00	1.20	1.45	1.75	2.15	2.70	3.40	4.30
Add for Nickel-plating... "	.10	.15	.20	.25	.25	.30	.35	.40	.50

SLIDE LEVER, SIGHT FEED

Plate E10103

INDEX LEVER, SIGHT FEED

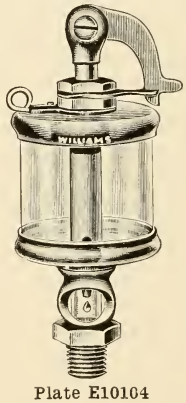


Plate E10104

Number	00	0	1	1½	2	3	4	5	6
Capacity.....ounces	½	⅝	1	1½	2½	4	5	10	18
Outside Diam. of Cup, Slide Lever..inches	1 7/16	1 9/16	2	2	2 1/2	2 1/2	3 1/4	3 3/8	4 3/8
Height of Cup over all, " " .. "	3 13/16	4 1/16	4 3/8	4 11/16	5 3/16	5 7/16	5 3/4	6 7/8	7 7/8
Outside Diam. of Cup, Index " .. "	...	2 9/16	2 9/16	2 9/16	2 9/16	2 13/16	2 15/16	3 5/8	3 15/16
Height of Cup over all, " " .. "	...	4 5/16	4 11/16	4 15/16	5 1/2	5 3/4	6	7 5/32	8 5/32
Size Thread..... "	1/8	1/8	1/4	1/4	3/8	3/8	3/8	1/2	1/2
Price, Slide Lever Finished.....each	1.00	1.05	1.30	1.55	1.85	2.30	2.85	3.60	4.50
" Index " " ..... "	....	1.25	1.50	1.75	2.10	2.55	3.15	3.90	4.80
" Slide " Nickel-plated..... "	1.10	1.25	1.50	1.80	2.15	2.60	3.20	4.00	5.00
" Index " " ..... "	....	1.40	1.70	2.00	2.35	2.85	3.50	4.30	5.30

GLASS OIL CUPS

"TACOMA" SNAP LEVER, SIGHT-FEED

FEED ON, LEVER UP

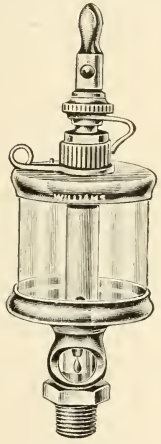


Plate E10111

FEED OFF, LEVER DOWN

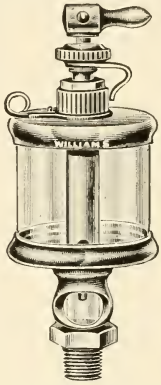


Plate E10112

Number	0	1	1½	2	3	4	5	6
Capacity .....ounces	5/8	1	1½	2½	4	5	10	18
Outside Diameter of Cup, inches	1 5/8	2	2	2 1/2	2 1/4	3 1/4	3 3/8	4 3/8
Height of Cup, Lever Up "	5 3/16	5 9/16	5 13/16	6 5/16	6 5/8	6 7/8	8 1/16	9 1/16
Size, Thread..... "	1/8	1/4	1/4	3/8	3/8	3/8	1/2	1/2
Price, Finished .....each	3.00	3.25	3.50	3.75	4.25	5.25	7.25	9.25
" Nickel-plated..... "	3.50	3.75	4.00	4.25	4.75	5.75	8.00	10.25

CYLINDRICAL GLASSES, FOR GLASS OIL CUPS

Plate E10113

Number.....	000	00	0	1	1½	2	3	4	5	6	8
Outside Diameter. ....inches	1	1 1/8	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	3	3 1/2	4 1/4
Height..... "	7/8	1	1 1/8	1 3/8	1 5/8	1 7/8	2 1/8	2 3/8	3	4	5
Price.....each	.05	.06	.08	.10	.10	.12	.15	.25	.35	.65	1.50
" Cork Washers, per dozen	.15	.18	.24	.30	.36	.40	.45	.50	.60	.75	1.50

BRASS OIL CUPS

PLAIN

Plate E10121

LARGE BASE

Plate E10122

ELBOW SHANK

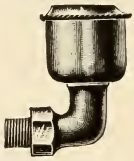


Plate E10123

TEE HANDLE

Plate E10124

LEVER HANDLE

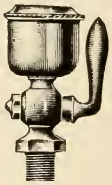


Plate E10125

Number	00	0	1	2	3	4	5	6	7	8	9
Outside Diameter.....inches	21/32	25/32	7/8	1 1/16	1 1/4	1 15/32	1 5/8	1 13/16	2	2 3/16	2 7/16
Size, Thread..... "	1/8	1/8	1/8	1/4	1/4	3/8	3/8	3/8	1/2	1/2	1/2
Price, Plain.....each	.25	.30	.35	.40	.60	.90	1.25	1.60	1.75	2.25	2.75
" " Square on Cap.. "	.60	.70	.95	1.05	1.30	1.90	2.10	2.40	2.80	3.50	4.20
" Large Base..... "	.30	.35	.40	.50	.75	1.00	1.50	1.80	2.00	2.50	3.00
" " Square on Cap. "	.70	.85	1.05	1.25	1.50	1.90	2.40	2.80	3.30	4.30	5.00
" Elbow Shank..... "	.55	.65	.75	.85	1.00	1.40	1.80	2.15	2.40	3.00	3.80
" Tee Handle..... "	.75	.80	.90	1.00	1.50	2.00	2.50	2.75	3.00	3.75	4.50
" Lever Handle ..... "	.85	.90	1.00	1.10	1.60	2.20	2.75	3.00	3.25	4.00	5.00
Add for Brass Tubes..... "	.10	.10	.10	.10	.15	.15	.15	.15	.15	.20	.20
" " Nickel-plating..... "	.10	.10	.10	.10	.10	.15	.15	.15	.20	.20	.20

SMALL BASE

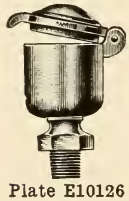


Plate E10126

HINGED LID

Number.....	1	2	3	4	5	6	7
Outside Diameter..inches	7/8	1	1 1/4	1 1/2	1 3/4	1 7/8	2
Size, Thread..... "	1/8	1/4	1/4	3/8	3/8	3/8	1/2
Price, Small or Large Base.each	.70	.85	1.20	1.60	2.10	2.50	2.70
" Elbow Shank. "	.85	1.15	1.60	2.10	2.65	3.05	3.25
Add for Brass Tubes "	.10	.10	.15	.15	.15	.15	.15
" " Nickel-plating... "	.10	.10	.10	.15	.15	.15	.20

LARGE BASE

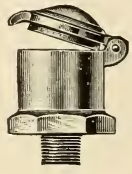


Plate E10127

PRIMING CUPS

LEVER HANDLE

Plate E10128

LEVER HANDLE
ELBOW SHANK

Plate E10129

TEE HANDLE

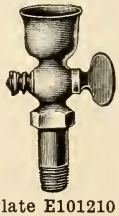


Plate E101210

SLOTTED
LEVER HANDLE

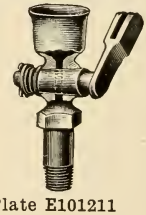


Plate E101211

Diameter.....inches	5/8	3/4	1	1	1 1/8	1 1/4
Size of Shank, Pipe and Thread.....inches	1/8	1/8	1/8	1/4	1/4	3/8
Price, Lever Handle .....each	.75	.85	.95	1.10	1.40	1.65
" Tee " Short Shank..... "	.70	.80	.90	1.00	1.30	1.50
" " " Long " ..... "	.70	.80	.90	1.00	1.30	1.50
" Lever " Elbow " ..... "	.85	1.00	1.15	1.35	1.60	1.90
" Slotted Lever Handle..... "	.95	1.15	1.30	1.50	1.75	2.00

GREASE CUPS

STAR

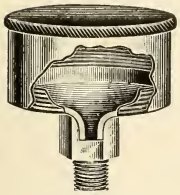


Plate E10131

BRASS NEVERSLIP

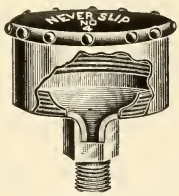


Plate E10132

STEEL

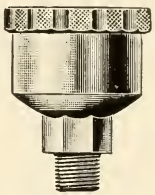


Plate E10133

"SURLOK" RATCHET

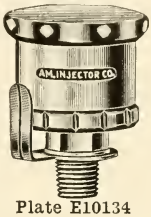


Plate E10134

STAR, NEVERSLIP AND STEEL

Number	00	0	1	2	3	4	5	6	7
Diameter.....inches	....	7/8	1 1/8	1 1/2	1 7/8	2 1/8	2 3/4	3	3 1/2
" Steel..... "	1	1 1/4	1 1/2	2	2 1/2	3	....	....	....
Size, Thread..... "	....	1/8	1/8	1/4	1/4	3/8	1/2	1/2	3/4
" " Steel . "	1/8	1/8 or 1/4	1/4	1/4 or 3/8	3/8 or 1/2	1/2	....	....	....
Price, Star or Neverslip, Fin.. each	....	.70	.70	.90	1.15	1.50	2.15	2.90	5.50
" " " " N. P. "	....	.90	.90	1.05	1.35	1.80	2.60	3.50	6.00
" " " " Rough "	....	.60	.60	.80	1.05	1.35	1.80	2.80	4.50
" Steel, Plain..... "	.70	.90	1.15	1.50	2.15	2.90	....	....	....
" " Blued .... "	.90	1.15	1.40	1.80	2.60	3.50	....	....	....
" "Surlok" Ratchet.... "	....	.70	.85	1.00	1.20	2.10	....	....	....

"MOON" AUTOMATIC

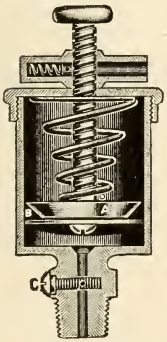


Plate E10135

"MOON" AUTOMATIC

The spring and plunger are controlled by the thumb nut on top of cup and will not jar from position. The rate of feed is regulated by screw "C." Beveled leather washer insures a tight joint.

"CLIMAX" COMPRESSION

No springs are used in these cups and whenever the plunger is screwed down their operation is unavoidable. Designed for marine engines and roller mills. Can be applied to any bearing.

"CLIMAX" COMPRESSION

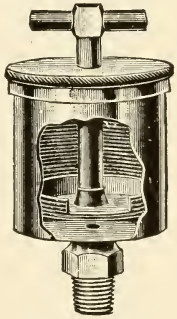


Plate E10136

Number	0	1	2	3	4	5	*6	*7	*8
Capacity, "Moon".ounces	1/3	1	1 1/2	2 1/8	4 1/2	10	.....	.....	.....
Diameter, " ..inches	1 1/4	1 1/2	1 3/4	2	2 3/4	3 3/8	.....	.....	.....
" "Climax" "	7/8	1 1/4	1 5/8	1 7/8	2 3/8	3	3 5/8	4	5
Size, Thread..... "	1/8	1/4	1/4	3/8	1/2	1/2	3/4	3/4	1
Price, "Moon," Finished...each	1.50	2.00	2.50	3.20	4.30	6.00	.....	.....	.....
" " Nickel-plated "	1.75	2.25	2.80	3.60	5.00	6.75	.....	.....	.....
" "Climax," Finished.. "	1.00	1.20	1.60	2.00	2.80	5.00	15.00	28.00	50.00
" " Nickel-plated "	1.50	1.75	2.35	2.90	4.00	8.00	18.00	31.00	55.00

*Sizes 6, 7 and 8 are extra heavy and have cone-shaped bottoms.

STEEL OILERS

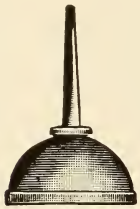


Plate E10141

Plate E10142

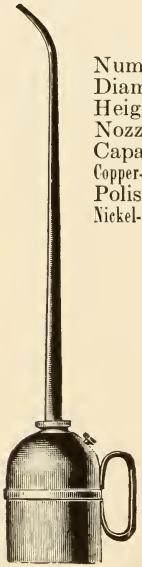
COPPER-PLATED STEEL

Number	12	13	13A	14	14A	14AA	14B	15	15A	16
Diameter ....inches	2¾	3⅜	3⅜	3⅜	3¾	3¾	3¾	4¼	4¼	4¼
Nozzle..... "	3	3	5	9	3	5	9	3	5	9
Capacity.....pints	¼	⅓	⅓	⅓	½	½	½	1	1	1
Price....per dozen	**4.50**	**5.50**	**6.00**	**6.50**	**7.50**	**8.00**	**8.50**	**9.25**	**9.75**	**10.50**

NICKEL-PLATED STEEL

Number	N-120	N-130	N-130A	N-140	N-140A	N-140AA	N-140B	N-150	N-150A	N-160
Diameter .inches	2¾	3⅜	3⅜	3⅜	3¾	3¾	3¾	4¼	4¼	4¼
Nozzle.... "	3	3	5	9	3	5	9	3	5	9
Capacity...pints	¼	⅓	⅓	⅓	½	½	½	1	1	1
Price...per dozen	**6.50**	**8.00**	**8.75**	**9.20**	**10.00**	**10.75**	**11.25**	**12.00**	**13.00**	**14.00**

Nos. 10-18



STEEL RAILROAD OILERS—Nos. 10-18

Number	10	10½	11	P-10	P-11	N-17	N-17½	N-18
Diameter .inches	3⅜	3¾	4⅛	3⅜	4⅛	3⅜	3¾	5⅛
Height.... "	5	5½	6	5	6	5	5½	6
Nozzle ... "	12	12	18	12	18	12	12	18
Capacity...pints	1	1½	2	1	2	1	1½	2
Copper-plated..per doz.	**14.00**	**16.00**	**18.00**	.....	.....	.....	.....	.....
Polished .. "	.....	.....	.....	**14.00**	**18.00**	.....	.....	.....
Nickel-plated .. "	.....	.....	.....	.....	.....	**18.00**	**19.50**	**21.00**

Nos. 101 AND 111

POLISHED STEEL RAILROAD OILERS

Nos. 101 AND 111

Number	P-100	P-101	P-111
Diameter .....inches	3⅜	4⅛	5
Height..... "	6¼	6	8
Nozzle..... "	9	12	10 or 14
Capacity.....pints	1	2	4
Price.....per dozen	**14.00**	**18.00**	**21.00**

Plate E10143

Plate E10144

BOURDON PRESSURE AND VACUUM GAUGES

STEAM OR PRESSURE

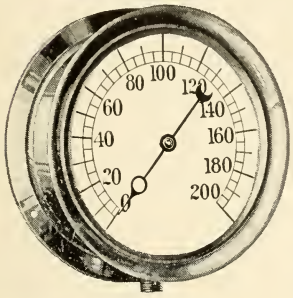


Plate E10151

VACUUM

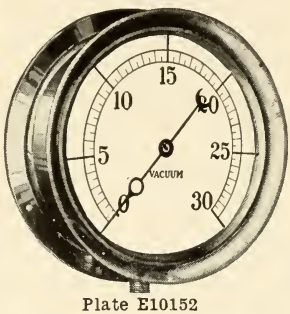


Plate E10152

LOW PRESSURE

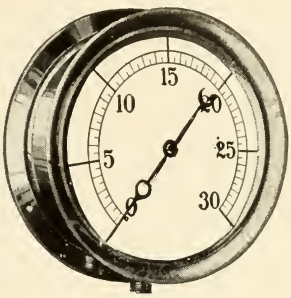


Plate E10153

PRESSURE OR VACUUM, SINGLE SPRING

Size of Dial ..... inches	2½	3	3½	4½	5	6	6¾	8½	10	12
Price, Iron Case, Brass Ring .... each	6.00	6.00	7.00	8.00	8.00	13.00	16.00	22.00	32.00	50.00
" " " N. P. " .... "	6.15	6.15	7.18	8.20	8.20	13.50	16.60	22.75	33.00	51.50
" Brass " ..... "	8.00	8.00	9.00	10.00	11.00	16.00	20.00	30.00	40.00	75.00
" Nickel-plated Brass Case "	8.60	8.60	9.75	11.00	12.00	17.50	22.00	32.50	43.00	79.00

PRESSURE, DOUBLE SPRING

Size of Dial ..... inches	4½	5	6	6¾	8½	10	12
Price, Iron Case, Brass Ring ..... each	10.00	11.00	15.00	18.00	25.00	37.00	55.00
" " " N. P. " ..... "	10.20	11.20	15.50	18.60	25.75	38.00	56.50
" Brass " ..... "	12.00	13.00	18.00	22.00	34.00	45.00	80.00
" Nickel-plated Brass Case ..... "	13.00	14.00	19.50	24.00	36.50	48.00	84.00

In ordering gauges, be sure to state pressure and size; also specify whether iron, brass or nickel-plated. All steam gauges should be connected with the boiler so that water alone, hot or cold, can enter the gauge; otherwise, the spring becomes heated and will not indicate the pressure correctly.

ALTITUDE

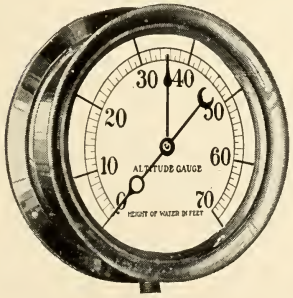


Plate E10154

COMPOUND

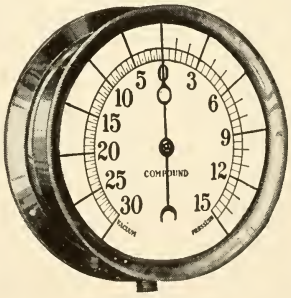


Plate E10155

COMBINATION

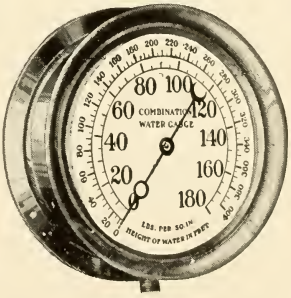


Plate E10156

Size of Dial ..... inches	3½	4½	*5	†5	6	6¾	8½	10	12
Price, Iron Case, Brass Ring ..... each	10.00	12.00	12.00	14.00	16.00	20.00	30.00	40.00	60.00
" " " N. P. " ..... "	10.18	12.20	12.20	14.25	16.50	20.60	30.75	41.00	61.50
" Brass " ..... "	12.00	14.00	14.00	16.00	20.00	25.00	40.00	50.00	80.00
" Nickel-plated Brass Case .... "	12.75	15.00	15.00	17.25	21.50	27.00	42.50	53.00	84.00

*Altitude. †Compound. Combination 5 to 12-inch only.

HYDRAULIC AND AMMONIA GAUGES, ETC.

HYDRAULIC

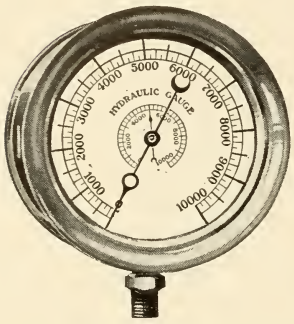


Plate E10161

AMMONIA

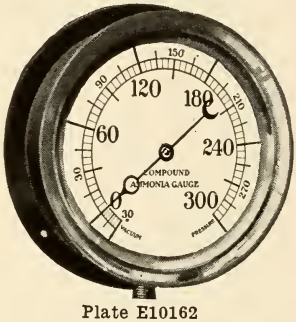


Plate E10162

TRACTION ENGINE

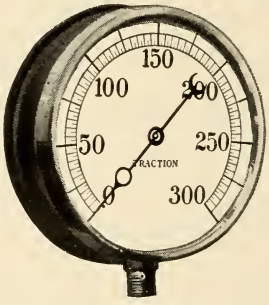


Plate E10163

HYDRAULIC GAUGES, WITH STEEL SPRINGS

Size of Dial.....inches	3½	4½	5	6	6¾	8½	10	12
Price, Iron Case, Brass Ring...each	22.00	25.00	30.00	35.00	50.00	70.00	90.00	110.00
" " " N. P. "..... "	22.50	25.50	30.50	35.50	50.60	70.75	91.00	111.50
" Brass Case ..... "	26.00	30.00	35.00	40.00	60.00	80.00	100.00	125.00
" Nickel-plated Brass Case "	26.75	31.00	36.00	41.50	62.00	82.50	103.00	129.00

Add 5.00 to list for gauge with maximum hand.

AMMONIA GAUGES, WITH STEEL TUBE SPRINGS

Size of Dial .....inches	3½	4½	5	6	6¾	8 or 8½
Price, Iron Case, Brass Ring .....each	25.00	25.00	30.00	35.00	40.00	45.00
" " " N. P. " ..... "	25.50	25.50	30.50	35.50	40.60	45.75

TRACTION ENGINE GAUGES

Size of Dial.....inches	3½	4½	5
Price, Single Spring, Iron Case, Brass Ring .....each	7.00	8.00	8.00
" " " " N. P. " ..... "	7.18	8.20	8.20
" Auxiliary or Double Spring, Iron Case, Brass Ring..... "	....	10.00	11.00
" " " " " " N. P. " ..... "	....	10.20	11.20

These gauges furnished with ⅜-inch male connections and without flanged case and cock.

EQUALIZED ALTITUDE WATER GAUGE

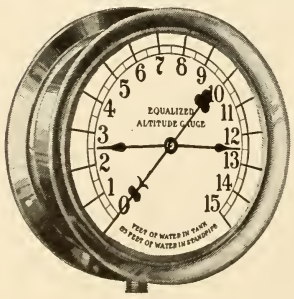


Plate E10164

For registering the height of water in elevator tanks, water towers, etc. Has all the advantages of the standard altitude and combination water gauges, with the additional advantage of registering the actual amount of water in tank to the fractional part of a foot, the pointer traveling around the full face of dial, showing first the height of water in the standpipe, then beginning to register as the water rises in the tank. In ordering please state the height of water column and depth of tank.

Size of Dial.....inches	6¾	8½	10	12
Price, Iron Case, Brass Ring,..each	20.00	30.00	40.00	60.00
" " " N. P. " .. "	20.60	30.75	41.00	61.50
" Brass " ..... "	25.00	40.00	50.00	80.00
" N. P. Brass Case.. "	27.00	42.50	53.00	84.00

WATER GAUGES

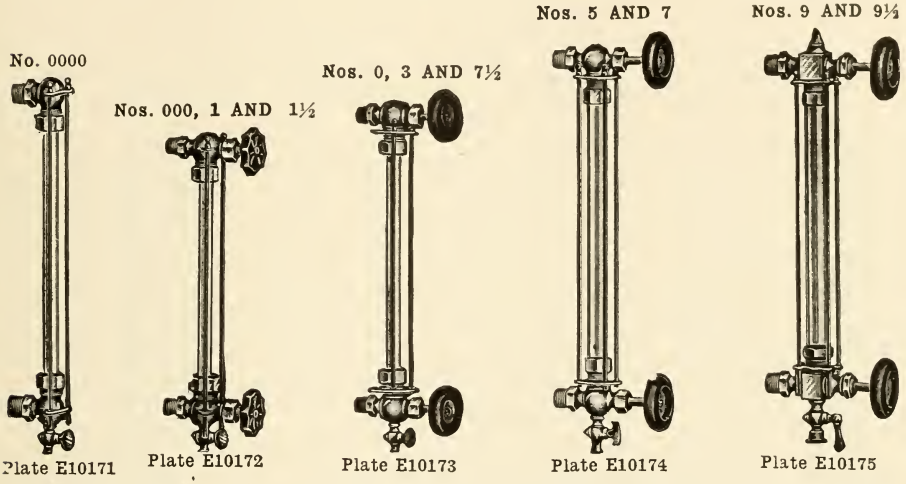


Plate E10171 Plate E10172 Plate E10173 Plate E10174 Plate E10175

EXPANSION TANK GAUGES, BRONZED ROUND BODY—Two Guards

Number	0000
Size, Thread, inches	½
" Glass, "	⅝x12
Price, each	2.60

WATER GAUGES, BRONZED ROUND BODY—Iron Wheels, Two Guards

Number	000	1	1½
Size, Thread, inches	⅜	½	¾
" Glass, "	⅝x8 or 10	⅝x12	¾x16
Price, each	2.75	3.00	4.50

WATER GAUGES, FINISHED ROUND BODY—Wood Wheels, Two Guards

Number	0	3	7½
Size, Thread, inches	⅜	½	¾
" Glass, "	⅝x8 or 10	⅝x12	¾x16
Price, each	3.75	4.25	5.50

WATER GAUGES, FINISHED ROUND BODY—Wood Wheels, Four Guards

Number	5	7
Size, Thread, inches	½	¾
" Glass, "	⅝x12	¾x16
Price, each	5.00	6.25

WATER GAUGES, FINISHED SQUARE BODY—Wood Wheels, Four Guards

Number	9	9½
Size, Thread, inches	½	¾
" Glass, "	⅝x12	¾x16
Price, each	6.00	8.00

WATER GAUGE COLUMNS AND COMBINATIONS

COLUMN ONLY

Plate E10181

WATER GAUGE COLUMNS

No.	Length Inches	Center to Center Gauge Connection Inches	Ends Tapped Inches	Tapped for Gauge Cocks Inches	Tapped for Water Gauge Inches	Outside Diameter Inches	Price Column only Each
1	15	10	1	3/8	1/2	2 5/8	1 35
2	17	12	1	1/2	1/2	3	1.75
3	20	15	1 1/4	1/2	1/2	3 5/8	2.50
4	24	18	1 1/4	3/4	3/4	4	3.50
5	26	20	1 1/4	3/4	3/4	4 3/4	5.25
6	28	20 1/4	1 1/4	3/4	3/4	5 1/2	6.50

Nos. 2, 3 and 4 are standard sizes as usually called for. Nos. 1 and 6 are designed especially for house heating boilers and have no holes for gauge cocks. With Nos. 1, 5 and 6, the connection to boiler is made from top and bottom of column.

WITH TRIMMINGS

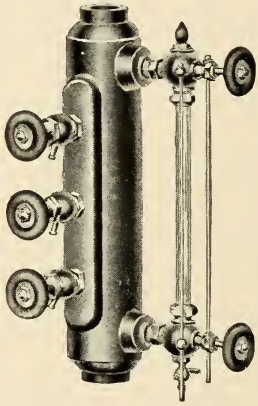


Plate E10182

COMBINATION GAUGES COMPLETE

For other combinations than given, add the price of trimmings as shown in the list below, or prices of any other trimmings, as may be preferred.

The prices given are suitable for pressures up to and including 175 pounds. For pressures up to 250 pounds, the same bodies may be used, but extra heavy gauge cocks and water gauges are recommended.

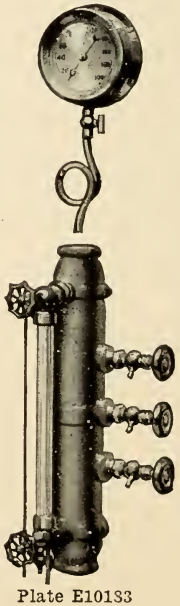


Plate E10183

Number	1	2	3	4
Number of Gauge Cocks	2	3	3	3
Size, Iron Pipe Thread....inches	3/8	1/2	1/2	3/4
Number of Water Gauges	1	1	1	1
Size of Steam Gauges....inches	5	5	6	6
" " Nipple.... "	1/2	1/2	3/4	3/4
" " Globe Valve.... "	1/2	1/2	3/4	3/4
" " Syphon .... "	1/4	1/4	1/4	1/4
" " Bushings.... "	1/2x1/4	3/4x1/4 3/4x1/2	1x1/4 1x3/4	1 1/4x1/4 1 1/4x3/4
Price, Bodies only, Tapped and Painted....each	2.75	4.00	6.00	8.00

When not otherwise specified, complete combination gauges will be trimmed and furnished as in above list.

GAUGE GLASSES AND ACCESSORIES

SCOTCH GAUGE GLASSES

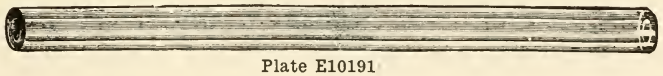


Plate E10191

Length.....inches	10	11	12	13	14	15	16	17	18
Price, ½ and ⅝-in..per dozen	3.00	3.24	3.60	3.84	4.20	4.44	4.80	5.04	5.40
" ¾-inch..... "	3.60	3.96	4.32	4.80	5.16	5.52	5.88	6.24	6.60
" ⅞ " ..... "	5.04	5.64	6.12	6.60	7.08	7.56	8.16	8.64	9.12
" 1 " ..... "	6.12	6.72	7.32	7.92	8.52	9.12	9.72	10.32	10.92

Length.....inches	19	20	22	24	30	36	48	60	72
Price, ½ and ⅝-in..per dozen	5.64	6.00	6.60	7.20	9.00	10.80	14.52	18.12	21.84
" ¾-inch..... "	7.08	7.44	8.16	8.88	11.16	13.44	18.00	22.56	27.12
" ⅞ " ..... "	9.60	10.20	11.16	12.12	15.24	18.24	24.36	30.48	36.48
" 1 " ..... "	11.52	12.12	12.14	14.64	18.24	21.96	29.16	36.48	43.80

60x1¼ inches, per dozen, 60.00. 72x1½ inches, per dozen, 108.00.

GAUGE GLASS WASHERS

SQUARE WASHER

Plate E10192

ROUND WASHER

Plate E10193

GILBERT'S PRESERVER

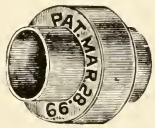


Plate E10194

Size.....inches	½	⅝	¾	1
Price, Square, Half-round or Round Washers.....per dozen	.25	.25	.35	.50
" Gilbert's Self-packing Preservers.....per box	*.60	*.60	*.60	*.60

*Sizes ½, ⅝ and ¾-inch, packed 1 dozen in box. 1-inch size, ½ dozen in box.

GAUGE GLASS CUTTERS

CHESTERTON

Plate E10195

BOSTON

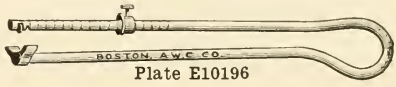


Plate E10196

Price, Chesterton.....each	2.00
" Boston..... "	1.50

EXTRA BRASS GUARDS FOR WATER GAUGES

Length.....inches	12	14	16	18	20	22	24	30
Price.....each	.09	.10	.12	.15	.16	.17	.18	.21

All guards 3/16 inch in diameter.

STEAM WHISTLES

SINGLE BELL CHIME WHISTLES

PLAIN WHISTLES WITHOUT VALVE

Plate E10201

PLAIN WHISTLES WITH VALVE

Plate E10202

WITH ADJUSTABLE LEVER

Plate E10203

WITHOUT VALVE

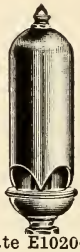


Plate E10204

LOCOMOTIVE STYLE With Upright Valve

Plate E10205

PLAIN WHISTLES—WITHOUT VALVE

Diameter of Bell.....inches	1	1¼	1½	2	2½	3	3½
Length of Bell.....inches	2½	3	3¼	4	4½	5	5¾
Size of Pipe..... "	¼	¼	⅜	½	½	¾	1
Price.....each	2.20	2.75	3.00	4.35	5.25	7.25	9.50

Diameter of Bell.....inches	4	5	6	8	10	12	....
Length of Bell.....inches	6½	8	9½	14	16	22	....
Size of Pipe..... "	1¼	1½	2	2½	3	3	....
Price.....each	12.00	19.00	24.00	70.00	175.00	350.00	....

WHISTLES WITH VALVE—ADJUSTABLE LEVER

Diameter of Bell.....inches	1	1¼	1½	2	2½	3	3½
Length of Bell.....inches	2½	3	3¼	4	4½	5	5¾
Size of Pipe..... "	¼	⅜	⅜	¾	¾	1	1
Price.....each	3.10	3.75	4.00	5.50	6.50	8.50	11.50

Diameter of Bell.....inches	4	5	6	8	10	12	....
Length of Bell.....inches	6½	8	9½	14	16	22	....
Size of Pipe..... "	1¼	1½	2	2½	3	3	....
Price.....each	15.00	22.50	33.00	95.00	225.00	425.00	....

Brass whistles with longer bell than standard made to order.

WHISTLE VALVES—BRASS

Size.....inches	¼ and ⅜	½	¾	1	1¼	1½	2	2½	3
Price.....each	2.00	2.50	3.00	4.40	5.60	7.40	14.00	18.00	29.50

SINGLE BELL CHIME WHISTLES

Diameter of Bell.....inches	1½	2	2½	3	3½	4
Size of Pipe.....inches	⅜	½	¾	¾	1	1¼
Price, Brass, Adjustable Lever.....each	7.00	10.00	13.00	16.00	22.00	28.00
" " without Valve..... "	5.50	8.50	10.50	13.50	18.50	24.00
" Iron Base, without Valve..... "	....	....	....	12.00	16.50	22.00
" Brass, Locomotive Style..... "	....	....	....	....	....	27.50

Diameter of Bell.....inches	5	6	8	10	12	....
Size of Pipe.....inches	1½	1½	2	2½	3	....
Price, Brass, Adjustable Lever.....each	44.00	60.00	145.00	235.00	400.00	....
" " without Valve..... "	37.00	49.00	120.00	188.00	370.00	....
" Iron Base, without Valve..... "	33.00	45.00	108.00	155.00	340.00	....
" Brass, Locomotive Style..... "	43.00	59.00	....	....	....	....

Bell of single bell chime whistles are cast in one piece.

AIR COCKS

TEE HANDLE

STRAIGHT NOSE

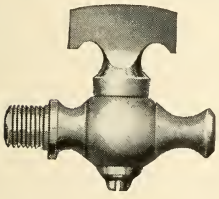


Plate E10211

Straight Nose	
Size Inches	Price Each
1/8	.40
1/4	.45
3/8	.50
1/2	.60
3/4	.90
1	1.15

MALE BOTH ENDS

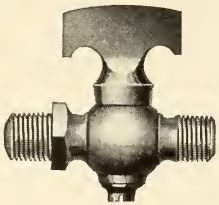


Plate E10212

Male Both Ends	
Size Inches	Price Each
1/8	.55
1/4	.65
3/8	.75
1/2	.90
..	...
..	...

BIBB NOSE

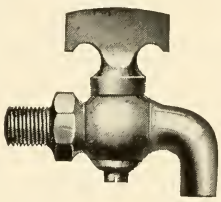


Plate E10213

	Bibb Nose	
	Price, Each	
Size Inches	Plain Nose	Threaded Nose
1/8	.70	.80
1/4	.80	1.00
3/8	.90	1.10
1/2	1.00	1.35
..	....	....
..	....	....

LEVER HANDLE

STRAIGHT NOSE

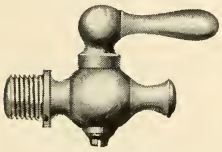


Plate E10214

Straight Nose	
Size Inches	Price Each
1/8	.55
1/4	.60
3/8	.65
1/2	.75
3/4	1.05
1	1.30

MALE BOTH ENDS

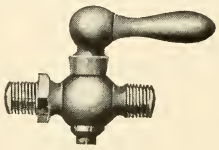


Plate E10215

Male Both Ends	
Size Inches	Price Each
1/8	.70
1/4	.80
3/8	.90
1/2	1.05
..	....
..	....

BIBB NOSE

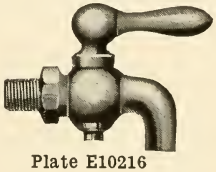


Plate E10216

	Bibb Nose	
	Price, Each	
Size Inches	Plain Nose	Threaded Nose
1/8	.85	.95
1/4	.95	1.15
3/8	1.05	1.25
1/2	1.15	1.50
..	....	....
..	....	....

AIR AND CYLINDER COCKS

AIR COCKS

T HANDLE

FEMALE BOTH ENDS

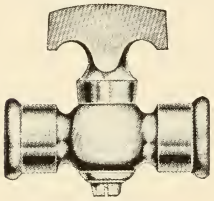


Plate E10221

Size Inches	Price Each
1/8	.75
1/4	.85
3/8	.95
1/2	1.15

MALE AND FEMALE

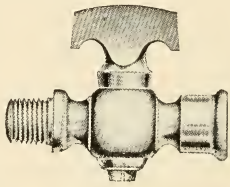


Plate E10222

Size Inches	Price Each
1/8	.75
1/4	.85
3/8	.95
1/2	1.15

LEVER HANDLE

FEMALE BOTH ENDS

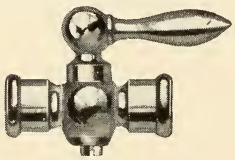


Plate E10223

Size Inches	Price Each
1/8	.90
1/4	1.00
3/8	1.10
1/2	1.30

MALE AND FEMALE

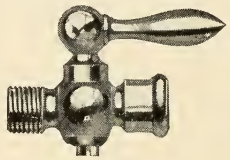


Plate E10224

Size Inches	Price Each
1/8	.90
1/4	1.00
3/8	1.10
1/2	1.30

CYLINDER COCKS

WITH UNION

T HANDLE

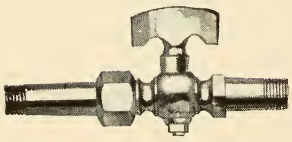


Plate E10225

Size Inches	Price Each
1/8	1.35
1/4	1.60
3/8	1.85
1/2	2.35
3/4	2.60
1	3.10

LEVER HANDLE

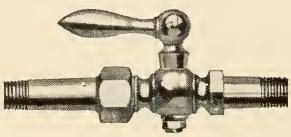


Plate E10226

Size Inches	Price Each
1/8	1.50
1/4	1.75
3/8	2.00
1/2	2.50
3/4	2.75
1	3.25

TRACTION ENGINE

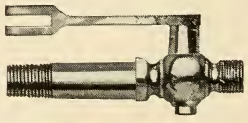


Plate E10227

I.P. Size Inches	Blank Shank Inches	Price, Each Short Shank	Price, Each Long Shank
1/8	3/8	1.15	1.45
1/4	1/2	1.30	1.55
3/8	5/8	1.40	1.70
1/2	3/4	1.85	2.20
1/2	7/8	2.50	3.00
3/4	1 1/8	3.25	4.00

GAUGE COCKS, ETC.

GAUGE COCKS

COMPRESSION, PLAIN

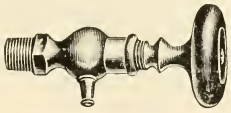


Plate E10231

COMPRESSION, WITH STUFFING BOX

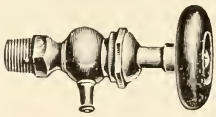


Plate E10232

Size, Plain ..... inches	¼	⅜	½	¾
Price, Plain ..... each	.85	.95	1.00	1.25
" with Stuffing Box ..... "	....	1.20	1.30	1.45

BALL

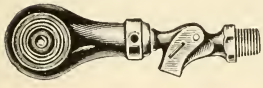


Plate E10233

BINGHAM SELF-GRINDING

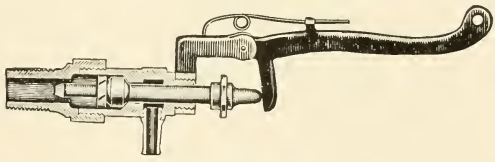


Plate E10234

BALL

Size ..... inches	⅜	½	¾
Price, with Iron Ball ..... each	1.00	1.00	1.10

BINGHAM SELF-GRINDING

Size of Shank, Pipe Thread ..... inches	½ or ¾
Price ..... per dozen	16.00

STEAM GAUGE SIPHONS

No. 1

Plate E10235

No. 2

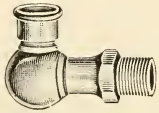


Plate E10236

No. 3

Plate E10237

No. 4

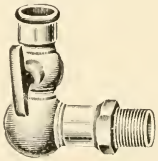


Plate E10238

Number	1	2	3	4
Price, Brass, Finished ..... each	1.00	1.25	1.50	1.50
" " Nickel-plated ..... "	1.50	1.75	2.00	2.00

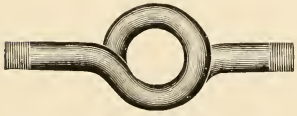


Plate E10239

IRON SIPHONS

Size ..... inches	¼
Price, Iron ..... each	.25
" Brass, Finished ..... "	1.00
" " Nickel-plated ..... "	1.50

FLUE CLEANERS AND BRUSHES

ENGINEERS' FAVORITE TUBE SCRAPER

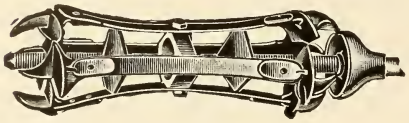


Plate E10241

ELLIPTICAL TUBE SCRAPER

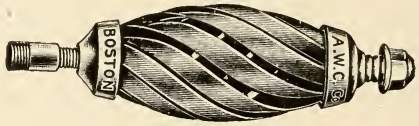


Plate E10242

Size.....inches	1¾	2	2¼	2½	2¾	3	3¼	3½	4
Price, Engineers' Favorite...each	2.00	2.00	2.25	2.50	2.75	3.00	3.25	3.50	4.00
" Elliptical..... "	2.00	2.00	2.25	2.50	2.75	3.00	3.25	3.50	4.00

SPIRAL FLAT WIRE BRUSH

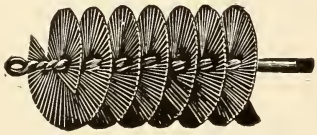


Plate E10243

ROUND WIRE BRUSH

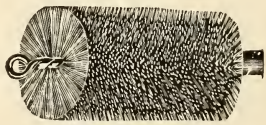


Plate E10244

SPIRAL FLAT WIRE BRUSHES

Price, Spiral Flat Wire Brushes, Sizes 1 to 6 inches.....per inch	.50

ROUND WIRE BRUSHES FOR FIRE BOX BOILERS

Price, 2, 2½, 3, 3½ or 4-inch.....each	1.00

WIRE BRUSHES FOR HEATING BOILERS

No. 1904

Plate E10245

EXPORT

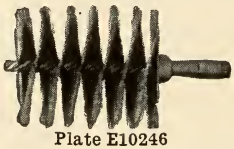


Plate E10246

OVAL

Plate E10247

Price, No. 1904, 4½x4x1¾ inches, for All Round and Sectional Boilers to 36-inch.....each	1.00
" Export, 6x4½x2¾ inches, for New 36 and 48-inch Boilers..... "	3.00
" Oval, 2¾x4x1 inches..... "	1.00

MAGIC STEAM FLUE CLEANERS

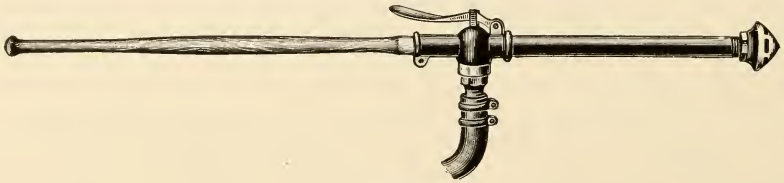


Plate E10248

Size of Tube... inches	2 to 2¼	2½ to 2¾	3 to 3¼	3½ to 3¾	4 to 4½	5 to 6
Price.....each	5.00	6.25	7.50	8.75	10.00	12.50

TUBE EXPANDERS

ROLLER TUBE

CLASS A IMPROVED

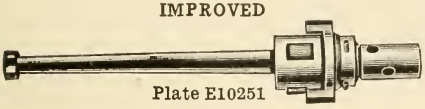


Plate E10251

CLASS C, WITH DETACHABLE MANDREL

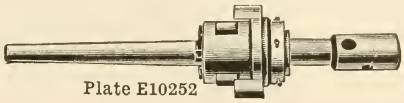


Plate E10252

CLASS H, PATENT SELF-FEED

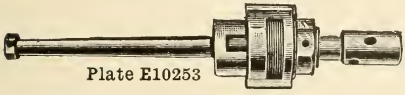


Plate E10253

CLASS E, ADJUSTABLE

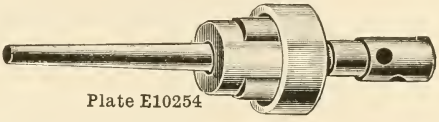


Plate E10254

The Class A improved type of roller expander is so familiar to users of this style tool that a detailed description is not necessary. The mandrels and rolls are made of a good grade steel, properly hardened to resist wear, and the tools are guaranteed to give good ordinary service, and are superior to the common malleable iron expanders now on the market. The Class C is similar to the Class A except that it is fitted with a cap to retain the rolls, and mandrel is without nut that it may be withdrawn. The body is also of steel, hardened to prevent wear in roll lots. Class H have the rolls set at an angle with the mandrel, have a tendency to draw the mandrel into the tool, thus dispensing with the hammering on mandrel. Class E expanders are so constructed that the rolls are given more adjustments than in the standard style expanders, giving a range suitable for two or more sizes of tubes, and are indispensable tools for use on odd sizes of tubes.

CLASSES A, C, AND H

Diameter.....inches	1	1¼	1½	1¾	1⅞	2	2¼	2½	2¾
Price, Classes A and C..ea.	10.00	10.00	10.00	10.00	10.00	10.00	12.00	14.00	16.00
" Class H..... "	12.00	12.00	12.00	14.00	15.00	16.00	18.00	20.00	23.00

Diameter.....inches	3	3¼	3½	3¾	4	4¼	4½	5	6
Price, Classes A and C..ea.	18.00	20.00	23.00	25.00	30.00	35.00	40.00	50.00	60.00
" Class H..... "	26.00	29.00	32.00	35.00	38.00	41.00	44.00	50.00	60.00

CLASS E

Size.....inches	1¾ to 1⅞	1⅞ to 2	2 to 2¼	2¼ to 2½	2½ to 2¾	2¾ to 3	3 to 3¼
Price.....each	16.00	20.00	24.00	28.00	33.00	38.00	43.00

Size.....inches	3¼ to 3½	3½ to 3¾	3¾ to 4	4 to 4¼	4¼ to 4½	4½ to 4¾	4¾ to 5
Price..... each	48.00	53.00	58.00	63.00	68.00	72.00	76.00

SPRING TUBE, CLASS J

Plate E10255

Spring tube expanders are used wherever there is a boiler shop. Tubes put in by this method, being expanded on both sides of the tube-plate serve as "braces" of the most efficient kind.

Size.....inches	1	1¼	1½	1¾	1⅞	2	2¼	2½
Price.....each	10.00	10.00	10.00	10.00	11.00	12.00	13.00	15.00

Size.....inches	2¾	3	3¼	3½	4	4½	5	6
Price.....each	18.00	22.00	26.00	30.00	33.00	37.00	42.00	60.00

The sizes refer to outside diameter of tube. When ordering, give thickness of tube-plate also.

Light Your Homes With Electricity

The "Safety First" Plant

EST. 1856
McDonald

Private Electric Lighting Plants

ELECTRIC MOTORS
ELECTRIC APPLIANCES
ELECTRIC FIXTURES
ELECTRIC PUMPS

For Town and Country Residences, Public Buildings, Business Houses

GASOLINE ENGINES, SUPPLIES, ETC.

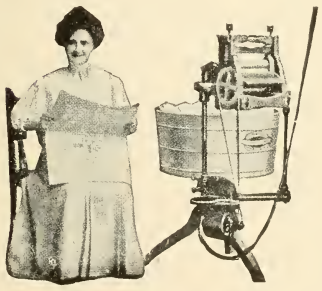
We list only a limited number in this catalog, but can furnish plants of any size

McDONALD "SAFETY FIRST" ELECTRIC LIGHT PLANTS

On the following pages we illustrate and describe **McDONALD SAFETY FIRST, ELECTRIC LIGHT PLANTS.** We only list and describe **30-VOLT PLANTS,** as they are the only ones used to any extent for domestic and farm lighting systems, where no lights or power are used more than 400 feet from the storage batteries. Where lights or power are to be used at a greater distance than 400 feet from the batteries, 55-volt or 110-volt plants are necessary and we will supply information and prices on request.

McDonald 30-Volt plants are safe to handle, no danger from injurious shocks.

Electricity is the Light and Power of to-day. For lighting the home, store or office church or school, the most inexpensive and satisfactory light is electricity. With electricity there is no smoke, no dirt, no work. There is no danger of fire or explosion.



Our Electric Light Plant is not expensive, and it is simple. There are no complicated parts. Our plants have all the automatic devices consistent with reliable operation. However, they are not Automatic Plants. Our plants are automatic as far as practical. In other words, in the hands of an expert electrician a so-called automatic lighting system has many attractive features; but for those who are unacquainted with the numerous complicated relays, requiring frequent adjustment to meet varying weather conditions, etc., the simpler systems are much more desirable and dependable.

The plant consists of a Gasoline Engine to furnish the power, the Dynamo to generate the electricity, the Storage Batteries to store the electricity, and the Switchboard to control the current.

Simplicity is the keynote of the successful electric light plant; the McDonald embodies only those essential features necessary to give light any time of day or night. All you have to do is turn the switch at the lamp.

Complicated and so-called automatic plants require the services of an expert, and even then it is not possible to keep them in working order. Not so with a McDonald plant; any man, woman or child can operate it.

Directions are easy to follow. You can't go wrong when you operate your McDonald plant.

McDONALD LEAD STORAGE BATTERIES

TYPES; CONSTRUCTION; THEORY OF OPERATION

Lead plate storage batteries consist principally of lead "negative" and "positive" plates, called "battery elements," submerged in "electrolyte," which is a solution of pure sulphuric acid and pure water. The container is usually a glass or hard rubber jar, or lead lined tank for the larger sizes.

There are two generic types of lead plates in use — the "Plante," or solid lead plate, usually contained in open glass jars, and the "Faure," or "pasted" plate, which is usually contained in sealed glass jars.

The Faure or "pasted-type" lead battery is the one commonly used in electric vehicles, and the very satisfactory service given has resulted in its extensive use for small low-voltage lighting plants. One of its principal advantages is its readiness for immediate service, owing to the fact that it is sent out fully charged and can be connected to service wires as soon as received and is available for immediate use.

The Faure Type plate (named after its originator, who was a Frenchman) is made of lead alloyed with a small amount of antimony to give it greater rigidity and it is cast in the form of a grid or lattice-work, usually the grid is doubled and the bars staggered to form pockets, into which is compressed a lead oxide paste from which the active material is formed by the action of the "forming" charge.

Faure batteries are usually assembled in sealed glass jars so as to permit easier inspection and greater electrolyte capacity.

In both Plante and Faure Type batteries the action of the charging current converts the positive plate into lead peroxide (Pb02) and the negative into spongy lead (Pb). When batteries are discharging or standing idle both plates are attacked by the sulphuric acid (H_2SO_4) in the electrolyte and exposed surfaces are converted into lead sulphate ($PbSO_4$). This action progresses slowly when lead batteries are standing idle in a charged condition, proceeds faster when batteries are discharging, and the action is most rapid when batteries are overdischarged or stand idle in a discharged condition. In some cases a state of sulphation may be reached that will render it very difficult to reform the plates and secure enough peroxide on positive plates and spongy lead on negative plates, to obtain proper storage capacity.

The McDonald Faure Type batteries are equipped with a unique connection terminal which is proof against electrolyte action or corrosion. By using this terminal we secure a system of battery assembly that allows the removal or replacement of any cell at any time without cutting or damaging connections or using any tool except the ordinary monkey wrench.

This battery has proven itself thoroughly reliable in actual service. Connections between battery trays are made with lead terminals cast around copper wire, so that all connections from cell to cell are made entirely "lead to lead," and no copper is exposed to the action of acid. We recommend the McDonald Faure Type battery for general farm service when moderate first cost and ready to serve installation is desired.

McDONALD
"SAFETY FIRST" ELECTRIC LIGHT PLANTS
D. A. SWITCH BOARDS

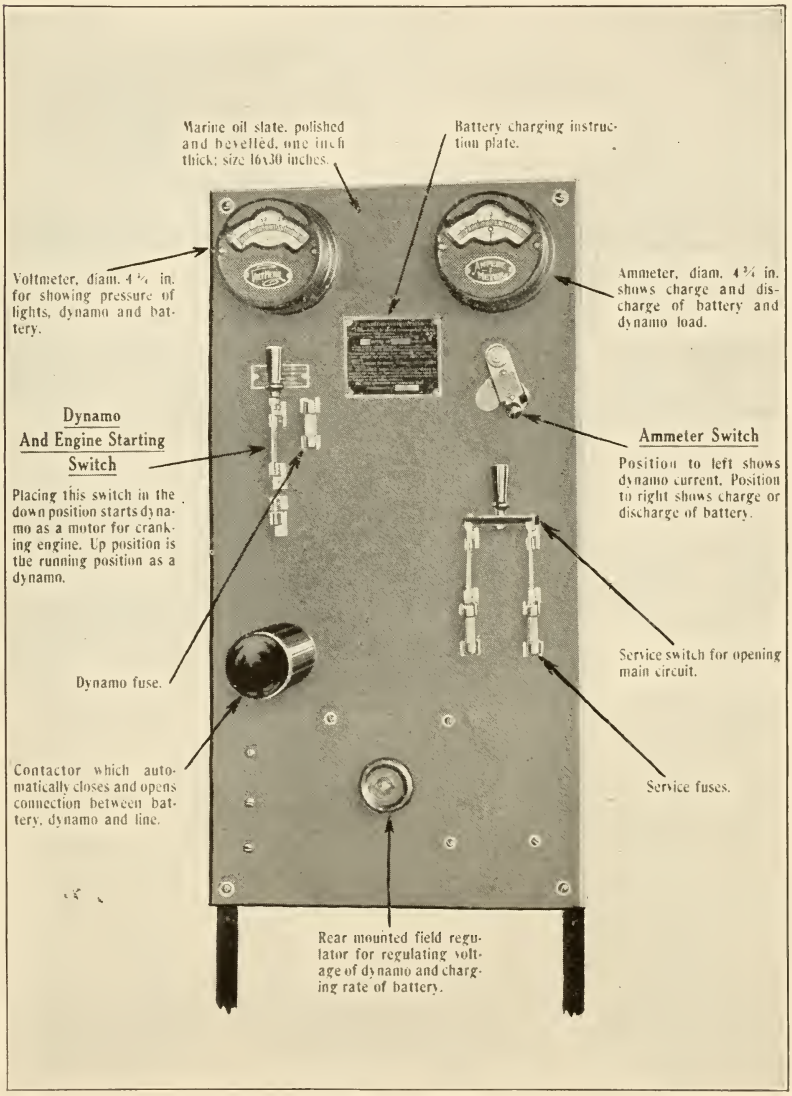

Marine oil slate, polished and bevelled, one inch thick; size 16x30 inches.
Battery charging instruction plate.
Voltmeter, diam. 4 ¾ in. for showing pressure of lights, dynamo and battery.
Ammeter, diam. 4 ¾ in. shows charge and discharge of battery and dynamo load.
Dynamo And Engine Starting Switch
Placing this switch in the down position starts dynamo as a motor for cranking engine. Up position is the running position as a dynamo.
Ammeter Switch
Position to left shows dynamo current. Position to right shows charge or discharge of battery.
Dynamo fuse.
Service switch for opening main circuit.
Contactor which automatically closes and opens connection between battery, dynamo and line.
Service fuses.
Rear mounted field regulator for regulating voltage of dynamo and charging rate of battery.

Plate E10291

OUR D. A. SWITCH BOARD

USED ON ALL D. A. PLANTS

McDONALD "SAFETY FIRST" ELECTRIC LIGHT PLANTS

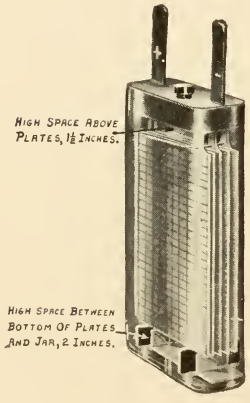
DETAILS OF EQUIPMENT

SWITCHBOARD: Slate panel provided with angle iron supports; Voltmeter to indicate pressure on light; Ammeter to indicate charge and discharge of Battery and Generator; Generator Switch to deliver charging current to battery, with fuse to protect Generator. Service or Lighting Switch to control wires for supplying current to the lights. Two fuses to protect the lighting circuit; Rheostat to control voltage of Generator and regulate charging rate to the batteries.

Contactor which automatically closes and opens the connections between battery, generator and lamps. This Contactor operates automatically and prevents injury to your lighting plant or the lamps. The material used in the construction of this board is the best that money can buy and with reasonable care and attention will last a lifetime.

The Switchboard controls the plant, regulates the flow of electricity into the Batteries, and from the Batteries to the house wiring; indicates to you with its instruments when the Batteries are fully charged; also when they are so nearly discharged that it is time to run the Generator again. Nothing but the highest grade material and workmanship enter into the construction of our Switchboard, and barring accidents, it will last a lifetime.

STORAGE BATTERY: This consists of Standard Glass Cells, equipped with Faure plates. The operator can see the condition of the Battery at any time without having to open them up.



The Storage Battery is the heart of any isolated lighting system and the McDonald Battery is designed to give long service with the minimum amount of attention by the owner of the plant. There is no limit to the life of these cells if they receive proper attention. All the attention that is necessary to keep these Batteries in condition is the occasional addition of distilled, or rain water, enough to keep the battery plates covered to a depth of ¼ inch. This will be necessary about once a month in winter and twice a month in summer. This, and giving the battery an occasional overcharge, will keep these cells in practically as good shape as new. These cells are shipped from the factory with the initial charge installed, saving a continuous run of 35 hours at the time of installation.

This type of battery is superior to the rubber jar battery. The many advantages are apparent to even the uninitiated.

McDONALD "SAFETY FIRST" ELECTRIC LIGHT PLANTS

SHOCK AND FIRE HAZARD

There is absolutely no danger from shock. A child may place its hands on the current carrying parts in any manner without the slightest effect.

The fire insurance companies recognize the low-voltage, properly-designed lighting plants as being the safest method of producing artificial light.

NO DANGER TO LIFE, HEALTH OR PROPERTY

The McDonald 30-volt plants listed herein CANNOT cause injury. Most people cannot even feel a 30-volt current; therefore a baby might play with the switches on a 30-volt switchboard without injury.

SIZES AND TYPES OF PLANTS

Experience has proved the need for several different types of plants, which we will outline briefly. In each case where a plant is desired, its size and type are usually determined by the following conditions:

(1.) Number of hours per day that plant may be run.

(2.) Kind and amount of power available to operate plant.

(3.) Average and maximum amount of light or power used when plant is running.

(4.) Average and maximum amount of light or power used when plant is not running.

(5.) Greatest distance from plant that electric current must be transmitted.

(6.) Amount you can afford to invest in a lighting plant. We can give you a serviceable equipment for any reasonable amount you may wish to spend.

LIFE OF BATTERIES

Under ordinary home lighting conditions we have obtained good service over an average period of four years, and in many instances, batteries have given service for six years. We have an arrangement whereby an old battery may be exchanged for a new one at a moderate charge based on a fixed percentage of the cost of original battery, which arrangement reduces the average annual maintenance to a figure about the same as for the Plante Type battery in glass jars.

The batteries of the Faure or "pasted-plate" type are assembled with separators in sealed glass jars provided with hard rubber covers, having large vent plugs to permit ready inspection of electrolyte. Jars have extra high bottom ridges which permit the operation of the battery for a period of from three to five years without washing out sediment. They require small floor space and are light weight.

All of the various size Faure plates are made with antimonious-lead grids of the staggered-bar type, into the cells of which is forced under pressure the active material, a paste mixture of oxides. The grids are arranged to contain the maximum amount of this active material, that is consistent with good design. The ribs of the grids are formed and staggered in a manner best adapted to retain the active material and to provide a maximum contact area and conducting surface, to which construction and to the special drying and curing process, is due this plate's remarkably low internal resistance and the resulting high efficiency, long life and high sustained voltage during discharge.

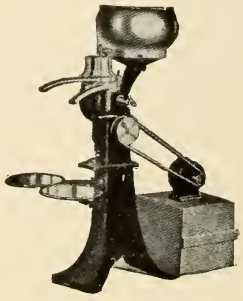
McDONALD
"SAFETY FIRST" ELECTRIC LIGHT PLANTS

DISTANCE CURRENT MAY BE CARRIED: 30-volt currents are efficient up to a radius of 400 feet from the power plant. This will allow its installation on practically any farm, or in most factories.

If it is necessary to carry current more than 400 feet and less than 1,500 feet, a 60-volt system will generally be desirable.

EFFICIENCY: 30-volt electricity is equally as efficient within its operating radius as current of higher voltage, and it has a greater light diffusion. 30-volts can be used without danger to anyone on the premises.

As it is not necessary to have battery close to the rest of the plant, it may be placed in a warm cellar while balance of plant is in a shed or barn. Four square feet of floor space are required for each battery.



The switchboard and dynamo occupy little space — about three square feet each — but dynamo must be placed three or more feet from engine flywheel to give proper length to the driving belt.

For the average plant consisting of engine, generator, battery and board a floor space about 4x9 feet is required, although this varies considerably with the different sizes of plants and types of batteries.

INSTALLATION INFORMATION

It is not necessary to employ an expert to install McDonald Plants with Faure or Edison Batteries. There are but four wires to run from battery to board, three from dynamo to board and two from board to lights. All connections are tagged to correspond with diagram in instruction book. Scores of farmers have installed their own plants without trouble.

McDONALD
"SAFETY FIRST" ELECTRIC LIGHT PLANTS

The above is a view of a building in Brooklyn, Iowa, which was recently destroyed by the explosion of an acetylene plant. Fortunately no one was in the building at the time of the explosion. Why should you take any such chances, when an electric light plant is so absolutely safe in this respect.

McDONALD "SAFETY FIRST" ELECTRIC LIGHT PLANTS GENERATORS

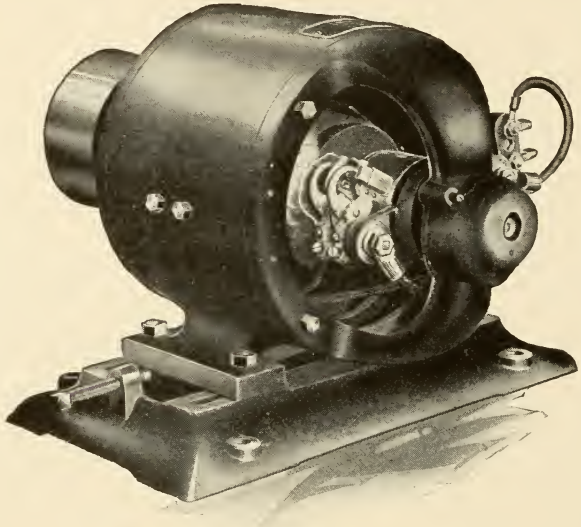


Plate E10341

This is a high-grade Shunt Wound Special Electric Dynamo of ample capacity for the Battery to be charged, and is especially designed for the charging of Batteries. It is equipped with belt tightener and will be shipped with pulley of proper size to bring it up to speed if diameter, face and speed of driving pulley is given us.

McDONALD LOW VOLTAGE GENERATOR

All McDonald Generators have frames cast from high-grade electrical steel—not cheap cast-iron. The commutators are properly designed and are extra large to carry the large low-voltage currents. Windings are amply heavy to prevent excessive heating.

We call especial attention to the fact that all McDonald Generators, from the smallest to the largest, are provided with ring-oilers for lubricating the bearings, which is vastly better than the wick-oilers or grease cups found on many other makes of machines.

They are designed to give the necessary extra voltage needed to charge the storage battery when connected, as in the Floating Battery Systems listed herein.

It is not necessary to run McDonald Generators at excessive speeds to secure full service, and the slower speeds result in slight wear on bearings and commutators and smaller expenditure for brush renewals.

It does not pay to use a cheap and inefficient generator. McDonald Generators cost less for power and repairs and give better and more continuous service.

McDONALD
"SAFETY FIRST" ELECTRIC LIGHT PLANTS

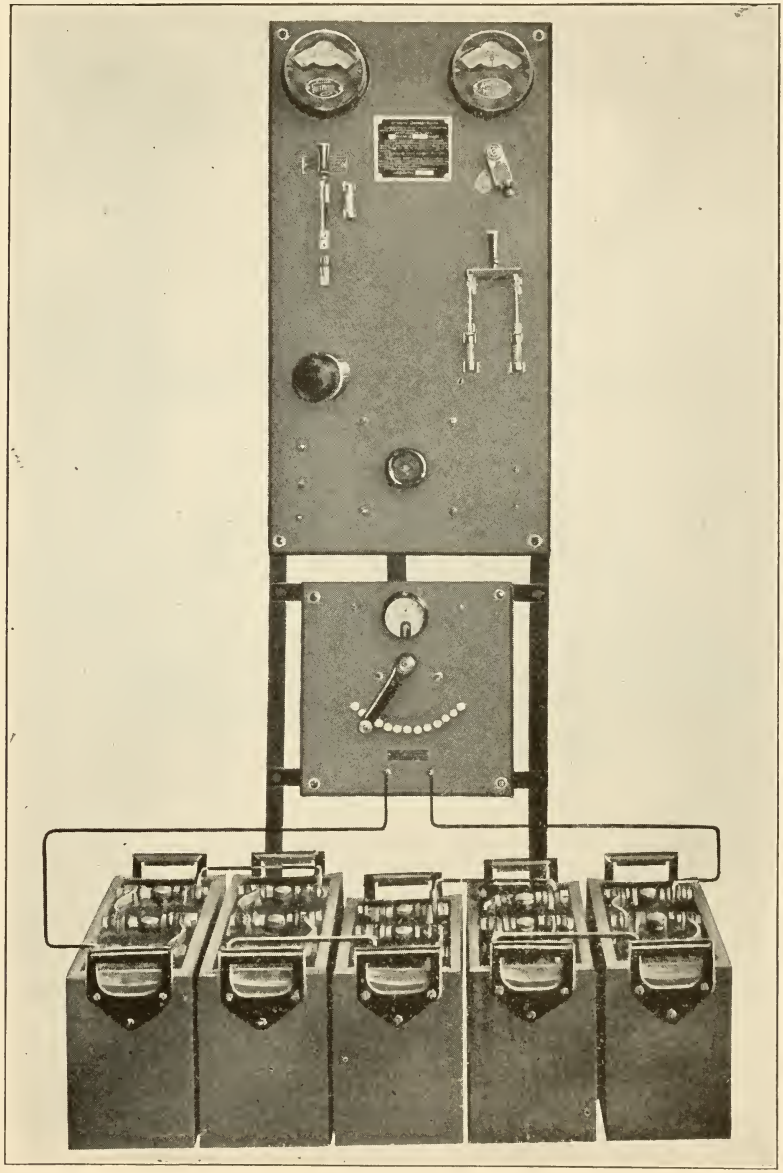


Plate E10351

Farm Lighting Plants can also be used for charging Automatic Storage Batteries, with very little additional cost.

This cut shows Switch Board for charging Automobile Batteries.

McDONALD
"SAFETY FIRST" ELECTRIC LIGHT PLANTS

TYPE S. C. JUNIOR PLANT

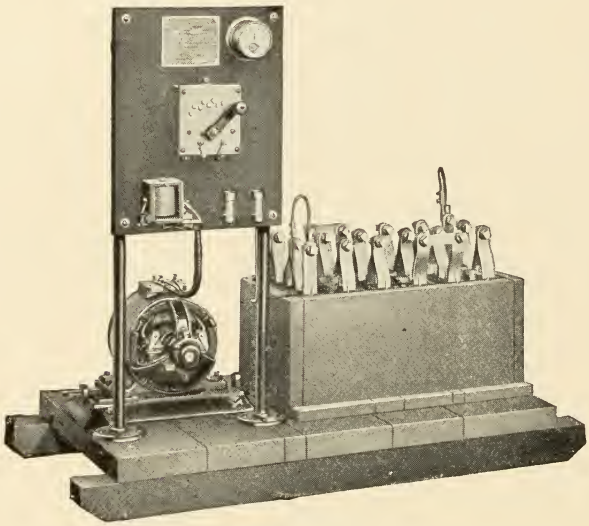


Plate E10361

The above illustrates our Type S. C. Junior Plant for light work and small capacity.

Size of Generator—360 Watts.

Battery has a capacity of approximately 5 20-watt lights for 8 hours; 8 for 5 hours and 12 for 3 hours.

This plant is shipped assembled complete as shown.

Price as described **150.00**

Power required to operate above plant, one horse power.

McDONALD
"SAFETY FIRST" ELECTRIC LIGHT PLANTS

TYPE S. C. PLANT

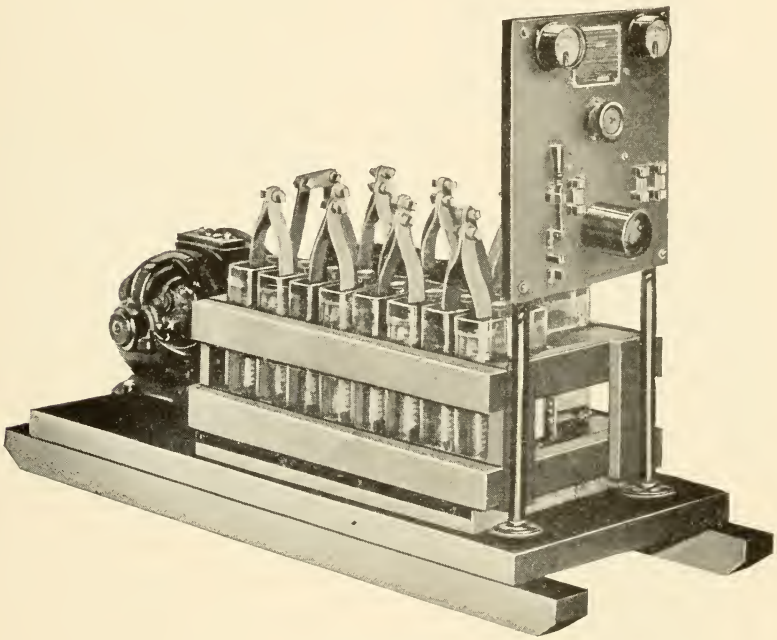


Plate E10371

McDonald Self-Contained Electric Light Plant complete with Generator, Batteries and Switch Board as shown, and made in the following sizes:

No. of Plant	Size Batteries — Number 20 Watt Lamps — For 8 Hour	For 5 Hours	For 3 Hours	Size Generator Watts	List Price
4 S. C.	7	11	16	500	**200.00**
6 S. C.	11	16	24	500	**230.00**
9 S. C.	15	22	32	800	**265.00**
10 S. C.	19	27	40	800	**300.00**
12 S. C.	22	33	48	1000	**345.00**

Power required to operate any of above plants 2½ horse power.

McDONALD "SAFETY FIRST" ELECTRIC LIGHT PLANT, TYPE D. A.

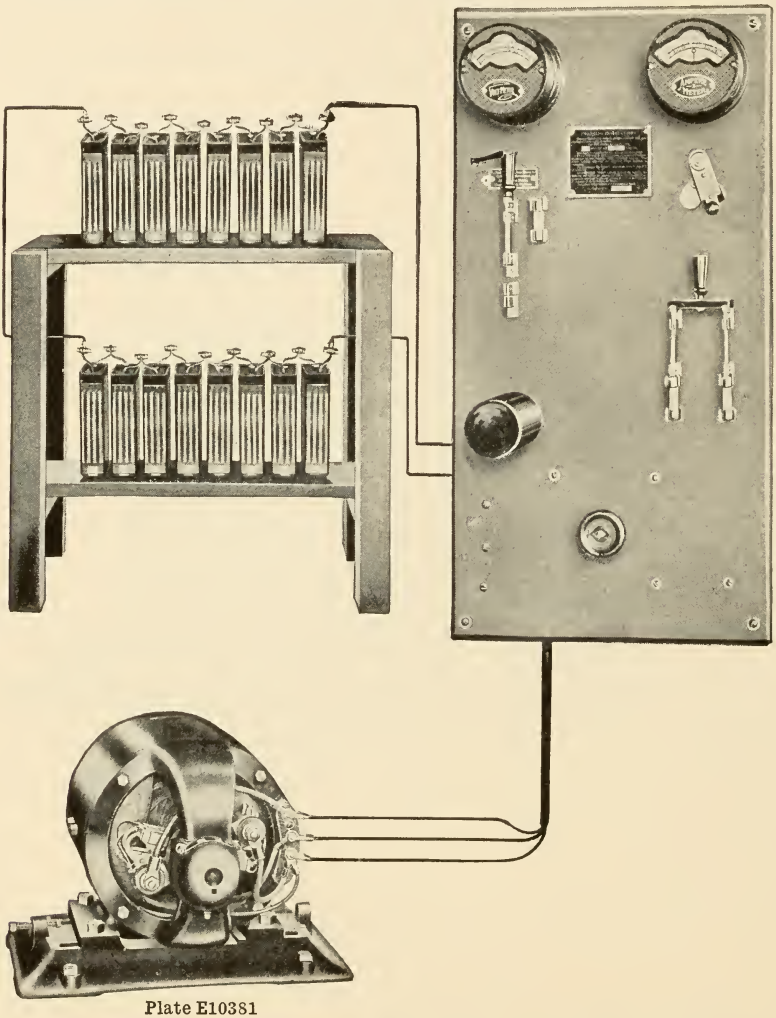


Plate E10381

McDonald Dis-Assembled Electric Light Plants complete with Generator, Switch Board and Batteries as shown and made in the following sizes:

Number of Plant	Size Batteries—Number of 20 Watt Lamps For 8 Hours	5 Hours	3 Hours	Size Generator Watts	List Price
80 D. A.	15	22	32	800	**295.00**
100 D. A.	19	27	40	1400	**365.00**
120 D. A.	22	33	48	2000	**430.00**
160 D. A.	30	44	64	3500	**540.00**

Above prices do not include Engine or Belt, on which we will name prices on application.

No. 80 D. A. Plant requires a 2½ H. P. Engine; Nos. 100 D. A. and 120 D. A. Plants require a 3 H. P. Engine; No. 160 D. A. Plant a 5 or 6 H. P. Engine.

ELECTRIC LIGHTING FIXTURES

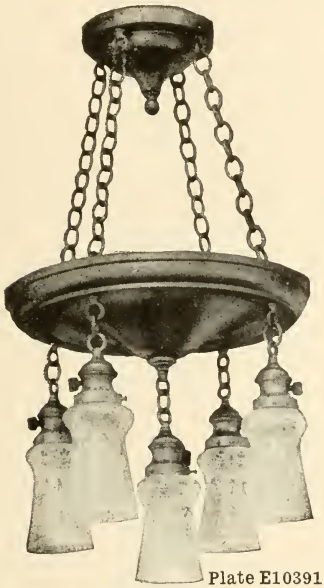


Plate E10391

4 Lights, Wired Comp. less Lamps **21.00**
5 " " " " " **25.00**

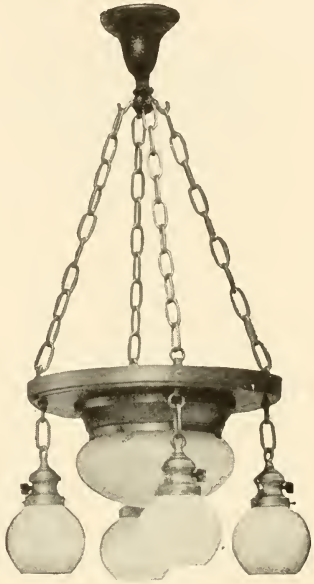


Plate E10392

4 Lights, Wired Comp. less Lamps **19.50**
5 " " " " " **23.10**

Plate E10393

4 Lights, Wired Comp. less Lamps **16.00**
5 " " " " " **19.00**

Plate E10394

4 Lights, Wired Comp. less Lamps **13.50**
5 " " " " " **16.40**

ELECTRIC LIGHTING FIXTURES

Plate E10401

4 Lights, Wired Complete Less Lamps 18.50
5 Lights, Wired Complete Less Lamps 22.00

Plate E10402

1 Light, Wired Complete Less Lamp 4.50

Plate E10403

2 Lights, Wired Complete Less Lamps 8.00

Plate E10404

1 Light, Wired Complete Less Lamp 3.00

Plate E10405

1 Light, Wired Complete Less Lamp 2.00

Plate E10406

1 Light, Wired Complete Less Lamp 2.50

ELECTRIC FANS, LAMPS, ETC.

DESK FANS

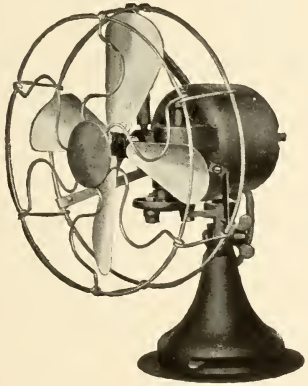


Plate E10411

No.	20— 8 inch	Residence Type		17.00
"	22—12 "	Regular	"	27.00
"	220—12 "	Oscillating	"	34.00
"	222—16 "	"	"	40.00

TUNGSTEN LAMPS

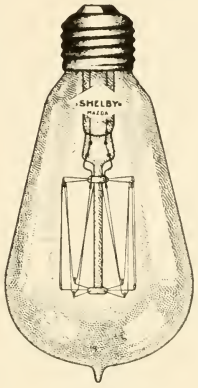


Plate E10412

8	Candle Power	.....	.50
16	" "	.....	.50
20	" "	.....	.50
32	" "	.....	.50
40	" "	.....	.75

KEY SOCKETS

Plate E10413

Each..... .40

PUSH BUTTON PENDENT SWITCHES

Plate E10414

Each..... .50

PUSH BUTTON SWITCHES

Plate E10415

Single	1.00
Double	1.15
Triple	1.40

PERKINS SWITCHES

SMALL SIZE
SINGLE-POLE

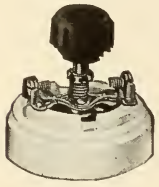


Plate E10421

SINGLE-POLE
SLOTTED

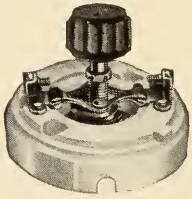


Plate E10422

SMALL AND LARGE SIZE, SINGLE-POLE

5 Amperes, 125 Volts; 3 Amperes, 250 Volts

Style	Solid or Slotted	Solid or Slotted Indicating
Price, Small Size ..... each	.28	.32
" Large " ..... "	.36	.40

SINGLE-POLE

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Style	Solid or Slotted	Solid or Slotted Indicating
Price ..... each	.48	.54

DOUBLE-POLE
SOLID

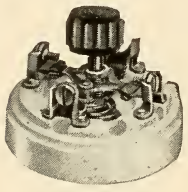


Plate E10423

FOUR-POINT

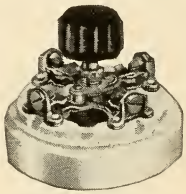


Plate E10424

DOUBLE-POLE

Style	Solid or Slotted	Solid or Slotted Indicating
Price, 5 Amperes, 250 Volts ..... each	.56	.64
" 10 " 250 " ..... "	.66	.76
" 20 " 250 " ..... "	1.40	1.50
" 30 " 250 " ..... "	1.70	1.80
" 50 " 250 " ..... "	3.00	3.10

THREE AND FOUR-POINT

Style	Solid	Slotted
Price, Three-point, 3 Amps., 125 V.; 1 Amps., 250 V..... each	.48	.48
" " " 5 " 125 V.; 3 " 250 V..... "	.56	.56
" " " 10 " 125 V.; 5 " 250 V..... "	.76	.76
" Four " 5 " 125 V.; 2 " 250 V..... "	.86	.86

BRYANT RECEPTACLES

No. 4000

Plate E10431

No. 4001

Plate E10432

No. 4002

Plate E10433

No. 50744

Plate E10434

No. 9447

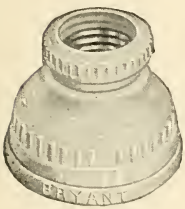


Plate E10435

No. 4024

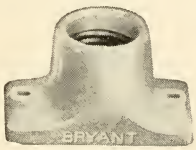


Plate E10436

No. 4026

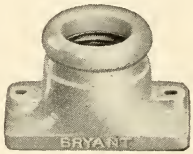


Plate E10437

No. 4025

Plate E10438

No. 42453

Plate E10439

No. 58302

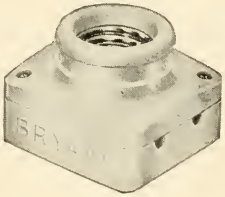


Plate E104310

No. 58950

Plate E104311

CONCEALED RECEPTACLES

No.	Description	Outside Diameter of Base Inches	Supporting Screws Centered Inches	Price Each
4000	.....	$2\frac{5}{16}$	$1\frac{5}{8}$	.25
4001	For Weatherproof Shade Holder.....	$2\frac{5}{16}$	$1\frac{5}{8}$	.30
4002	With Brass Ring for Standard Shade Holder.....	$2\frac{5}{16}$	$1\frac{5}{8}$	.35
50744	" Removable Ring.....	$2\frac{3}{8}$	$1\frac{1}{4}$	.30
9447	" " " and D. P. Fuse—250 watts, 125 volts..	$2\frac{1}{2}$	$1\frac{5}{8}$	.45

MOLDING RECEPTACLES—660 WATTS, 250 VOLTS

4024	.....	....	$2\frac{9}{32}$	.25
4026	For Weatherproof Shade Holder.....	....	$2\frac{9}{32}$	.30
4025	With Brass Ring for Standard Shade Holder	....	$2\frac{9}{32}$	.35
42453	Without Shade Holder Groove	....	$1\frac{13}{16}$	.25
58302	For Weatherproof Shade Holder.....	....	$1\frac{13}{16}$	.30
58950	With Brass Ring for Standard Shade Holder	....	$1\frac{13}{16}$	.35

Nos. 4024, 4026 and 4025 may also be used on pipe taplets.

PORCELAIN TUBES

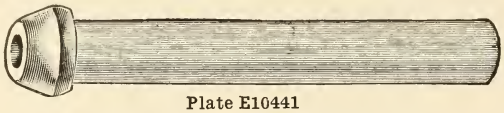


Plate E10441

Length under Head Inches	Price, per 100 — Inside and Outside Dimensions of Tubes, Inches											
	5/16x9/16	3/8x11/16	1/2x13/16	5/8x15/16	3/4x13/16	1x17/16	1¼x1 13/16	1½x2 3/16	1¾x2 9/16	2x2 15/16	2¼x3 5/16	2½x3 11/16
½	1.30	1.40	....	....	....	....	....	....	....	....	....	....
1	1.30	1.40	2.10	2.70	3.00	4.50	....	....	....	....	....	....
1½	1.30	1.50	2.10	2.70	3.30	5.30	....	....	....	....	....	....
2	1.40	1.80	2.60	3.20	4.20	6.00	....	....	....	....	....	....
2½	1.50	2.20	3.00	4.00	5.00	7.00	12.20	15.60	19.80	23.40	26.80	30.30
3	1.60	2.60	3.40	4.70	5.50	8.00	13.80	17.40	22.00	25.80	29.60	32.50
4	2.70	3.00	4.10	5.50	6.80	10.00	15.60	19.20	23.90	27.70	31.50	35.30
5	3.20	3.60	4.80	6.40	8.00	12.50	18.10	25.30	34.10	41.70	48.80	56.80
6	3.90	4.50	5.50	7.30	9.50	14.30	19.20	31.20	45.30	57.90	50.70	83.20
8	7.20	8.40	9.60	10.80	12.00	16.80	24.00	38.40	58.10	73.90	89.80	105.60
10	9.60	10.80	12.00	14.40	16.80	19.20	31.20	45.60	66.00	81.80	97.70	113.50
12	14.40	15.60	16.80	19.20	21.60	26.40	45.60	69.20	102.10	128.00	154.00	180.00
14	20.20	23.10	25.90	28.80	31.70	34.60	63.40	97.90	145.70	183.70	221.80	259.80
16	23.10	25.90	28.80	34.60	37.50	43.20	74.90	109.50	158.40	196.50	234.50	272.40
18	25.90	28.80	34.60	40.30	43.20	49.00	86.40	122.70	190.30	234.10	277.70	321.10
20	28.80	31.70	37.50	43.20	46.10	54.70	95.10	135.40	211.40	259.20	307.60	355.90
22	33.10	36.00	40.30	46.10	51.90	59.10	103.70	148.30	231.60	285.10	338.70	392.30
24	37.50	40.30	43.20	49.00	57.60	63.40	112.30	160.30	252.30	311.10	369.90	428.50

For glazed tubes, add 50 per cent to net prices. For split, split floor, and split crossover tubes, multiply list by 10. For floor, curved, and curved end tubes, multiply list by 6. For headless tubes, multiply list by 4. All measurements should be computed over all except split tubes, which should be taken under head, and crossover tubes, which should be taken between heads.

STANDARD INSULATORS

No. 4

Plate E10442

No. 4½

Plate E10443

No. 5½

Plate E10444

SPLIT INSULATORS

No. T-5½

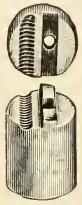


Plate E10445

ROUND REVERSIBLE No. 5517

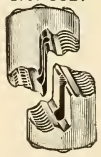


Plate E10446

SQUARE REVERSIBLE No. 55½

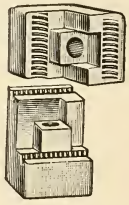


Plate E10447

STANDARD INSULATORS

Number	Diameter, Inches — Height	Diameter	Hole	Groove	Standard Package	Price per 1000
4	1 11/16	1½	3/8	3/8	2200	17.00
4½	1 7/8	1½	3/8	7/16	2000	19.00
5½	1 9/16	1	¼	5/16	5500	12.00

SPLIT INSULATORS

Number	Number of Grooves	For Size Wire	Standard Package	Price per 1000	Number	Number of Grooves	For Size Wire	Standard Package	Price per 1000
T-5½	1	12–14	3250	22.70	55½ Sq.	2	12–14	3750	30.00
5517 Rd.	2	12–14	3750	30.00	45½ "	2	8–10	2000	42.00
5135 "	2	8–10	1350	42.00	35½ "	2	4– 6	1000	59.00
5147 "	2	4– 6	675	59.00	....	....	....	....	....

LAMP CORD AND SPECIAL CABLES

NATIONAL ELECTRICAL CODE STANDARD—0-600 VOLTS

PRICE, PER 1000 FEET

LAMP CORD, TYPE C

Type C lamp cord consists of two conductors braided and twisted together. Used for pendent lamp; must hang freely.

COTTON COVERED

Size B. & S.	Base Prices of Copper, Cents, per Pound										
	30	31	32	33	34	35	36	37	38	39	40
16	55.05	55.70	56.35	57.00	57.65	58.30	58.95	59.60	60.25	60.90	61.55
18	43.70	44.10	44.50	44.90	45.30	45.70	46.10	46.50	46.90	47.30	47.70
					SILK COVERED						
16	78.45	79.10	79.75	80.40	81.05	81.70	82.35	83.00	83.65	84.30	84.95
18	65.60	66.00	66.40	66.80	67.20	67.60	68.00	68.40	68.80	69.20	69.60

RE-ENFORCED PORTABLE CORD, TYPE PS

Type PS re-enforced cord twisted like Type C, cotton finish with either hard glazed cotton or silk braid over all, excepting that the individual conductors are insulated with best $\frac{1}{64}$-inch rubber.

COTTON COVERED

16	63.75	64.40	65.05	65.70	66.35	67.00	67.65	68.30	68.95	69.60	70.25
18	51.70	52.10	52.50	52.90	53.30	53.70	54.10	54.50	54.90	55.30	55.70
					SILK COVERED						
16	90.85	91.50	92.15	92.80	93.45	94.10	94.75	95.40	96.05	96.70	97.35
18	77.10	77.50	77.90	78.30	78.70	79.10	79.50	79.90	80.30	80.70	81.10

RE-ENFORCED CORD, TYPE PWP

Type PWP re-enforced cord is the same as Type PS re-enforced cord, except that it is furnished with a weatherproof braid. Takes same list prices as Type PS re-enforced cord.

FIXTURE WIRE

LIGHT INSULATION, $\frac{1}{64}$-INCH RUBBER—SOLID

*16	17.2	17.3	17.6	17.8	18.1	18.4	18.5	18.8	19.0	19.3	19.4
†18	13.2	13.4	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7

LIGHT INSULATION, $\frac{1}{64}$-INCH RUBBER—STRANDED

*16	21.6	21.9	22.1	22.4	22.5	22.8	23.1	23.3	23.6	23.9	24.2
†18	16.8	16.9	17.1	17.2	17.4	17.5	17.7	17.8	18.0	18.1	18.3

*Do not bear Underwriters' stamp.

†Add 1.00 per thousand feet, list for a single paint-finished braid.

BREWERY CORD

Brewery cord consists of two conductors stranded, rubber insulated, braided and the two twisted together.

14	74.8	75.4	76.4	77.1	78.2	79.1	79.8	80.5	81.9	83.0	83.7
16	56.8	57.5	58.0	58.7	58.9	59.6	60.3	60.7	61.4	62.1	62.8
18	45.3	45.8	46.0	46.5	46.7	47.2	47.4	47.8	48.1	48.5	48.8

PACKING HOUSE CORD

Packing house cord consists of two conductors stranded, rubber insulated, braided, twisted together with jute filler, and finished with two weatherproof braids.

14	106.3	107.0	108.0	108.8	110.0	111.0	111.8	112.5	114.0	115.3	116.0
16	81.8	82.5	83.0	83.8	84.0	84.8	85.5	86.0	86.8	87.5	88.3
18	68.3	68.8	69.0	69.5	69.8	70.3	70.5	71.0	71.3	71.8	72.0

RUBBER COVERED WIRE

NATIONAL ELECTRICAL CODE STANDARD—0.600 VOLTS

SOLID

Plate E10461

STRANDED

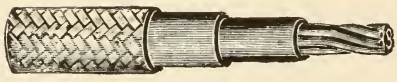


Plate E10462

TWIN SOLID

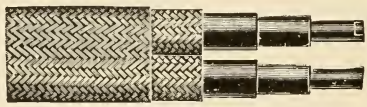


Plate E10463

SOLID

Size B. & S. Gauge	Diameter of Copper Mils	Area in Circular Mils	Rubber Wall Inches	Diameter Over All Inches	Approx. Weight per 1000 Feet Pounds
1	289.3	83690	1/16	33/64	355
2	257.6	66370	1/16	29/64	277
3	229.4	52630	1/16	27/64	227
4	204.3	41740	1/16	13/32	187
5	181.9	33100	1/16	24/64	158
6	162.0	26250	1/16	23/64	132
8	128.5	16510	3/64	19/64	85
10	101.9	10380	3/64	17/64	60
12	80.8	6530	3/64	16/64	44
14	64.1	4107	3/64	14/64	34

STRANDED

Size B. & S. Gauge	Number of Wires	Diameter of Each	Rubber Wall Inches	Diameter Over All Inches	Approx. Weight per 1000 Feet Pounds
0000	19	.105	5/64	26/32	899
000	19	.094	5/64	48/64	740
00	19	.084	5/64	45/64	607
0	19	.074	5/64	40/64	492
1	19	.067	5/64	36/64	387
2	19	.059	1/16	32/64	303
3	19	.052	1/16	29/64	249
4	7	.077	1/16	27/64	207
5	7	.069	1/16	25/64	173
6	7	.062	1/16	23/64	147
8	7	.048	3/64	21/64	93
10	7	.038	3/64	19/64	64
12	7	.032	3/64	17/64	48
14	7	.025	3/64	15/64	36

The above weights and over all dimensions apply to single braid wire.
A tape and braid takes the same price as double braid.
A tape and two braids takes the same price as triple braid.

TWIN SOLID

Size B. & S. Gauge	Size in Circular Mils	Rubber Wall Inches	Diameter Over All Inches	Approx. Weight per 1000 Feet Pounds
8	16510	3/64	43/64	187
10	10380	3/64	36/64	135
12	6530	3/64	33/64	95
14	4107	3/64	32/64	80

Prices quoted upon application.

McDONALD WATER SUPPLY SYSTEMS

WITH AUTOMATIC ELECTRIC DOUBLE ACTING FORCE PUMP

FOR SUPPLYING WATER FROM SHALLOW WELLS AND CISTERNS NOT OVER 25 FEET DEEP

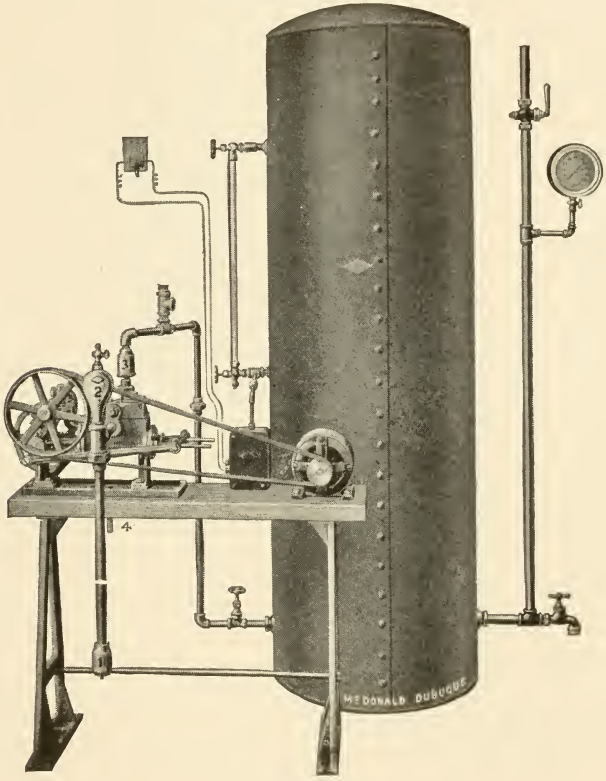


Plate E5831

Complete as shown, except pipe and pipe fittings, consists of following:

1—McDonald Automatic Electric Pump with Motor and Automatic Switch mounted on a stand; with Vacuum Chamber, Brass Foot Valve and Brass Vertical Check Valve, and Union Connections on Pump.

1—Vertical Pressure Tank.

1—Each, Water Gauge, Pressure Gauge, Gate Valve, Lever Handle Diamond Stop and Waste Cock and Compression Hose Bibb which also serves as a drain cock.

Size Tank	16″x5′	18″x5′	20″x5′	24″x5′
Capacity of Tank, Gallons	52	66	83	120
A. C. Single Phase 60 cycle, 110-220 volt	**127.00**	**135.00**	**141.00**	**154.00**
" 25, 30, 40, 50, 125 or 133 cycle	**137.00**	**145.00**	**151.00**	**164.00**
D. C. Motor, 110 or 220 volt	**127.00**	**135.00**	**141.00**	**154.00**
" " 30-60 volt	**130.00**	**138.00**	**144.00**	**157.00**

In ordering, specify size of Tank, also the kind of Motor.

McDONALD WATER SUPPLY SYSTEMS

WITH AUTOMATIC ELECTRIC DEEP WELL WORKING HEAD

FOR SUPPLYING WATER FROM WELLS FROM 25 TO 100 FEET DEEP

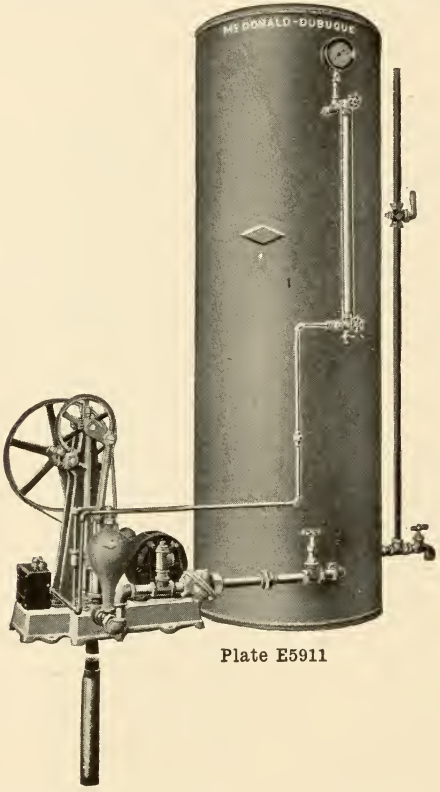


Plate E5911

Complete as shown, except pipe, pipe fittings and rod, consists of:

1—McDonald Automatic Electric Working Head with Motor and Automatic Switch on same Base, Cylinder, Air Chamber, and Union Connections on Discharge.

1—Vertical Pressure Tank.

1—Each, Water Gauge, Pressure Gauge, Check Valve, Relief Valve, Gate Valve, Lever Handle Diamond Stop and Waste Cock, and Compression Hose Bibb.

The size of Cylinder to be used with the above depends upon the depth to water.

Cylinder, Size Inches	Gallons per Hour	Depth to Water, Feet	Pressure in Tank, Pounds	Pipe Sizes, Inches Drop Pipe	Discharge		Well Rod Inches
1 5/8	120	100	40	1	3/4		3/8
1 3/4	140	75	40	1	3/4		3/8
2	180	40	40	1 1/4	3/4		3/8
Size Tank				16″x5′	18″x5′	20″x5′	24″x5′
Capacity of Tank, Gallons				52	66	83	120
A, C. Single Phase 60 Cycle, 110-220 volt				**156.00**	**164.00**	**170.00**	**183.00**
" " 25, 30, 40, 50, 125, 133 cycle				**166.00**	**174.00**	**180.00**	**193.00**
D. C. Motor, 110-220 volt				**156.00**	**164.00**	**170.00**	**183.00**
" " " 30-60 "				**159.00**	**167.00**	**173.00**	**186.00**

In ordering, specify size of Tank, and Cylinder, also kind of Motor, and whether for 110 or 220 Volt Current, as Motors are not interchangeable.

Extra for McDonald Fresh Water Attachment **7.00**

McDONALD ELECTRIC LIGHT PLANTS

INSTALLATION AND CARE OF 30-VOLT PLANTS

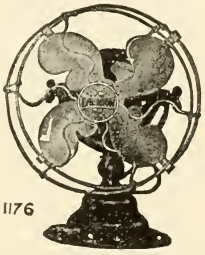
INSTALLATION

Set the **GENERATOR** not less than five feet from center of engine fly-wheel, and belt to run in direction shown by arrow on pulley or hub. Run at a speed very close to that given on name plate. Mount **SWITCHBOARD** in convenient place against the wall, using iron supports furnished. Should anything arrive broken, describe to us fully at once.

To install **BATTERY,** set the cells end to end on the shelf and bolt together with the lead covered bolts. **CONNECT THE POSITIVE OF EACH CELL TO THE NEGATIVE OF THE NEXT.** The positive strap is marked with a cross (×), the negative is blank. Make no mistake here, for reversing a cell will ruin it. As soon as battery is in place, remove vent tube stoppers. They are inserted for shipping purposes only.

Charge the batteries before you take any service from them. See "Care of Plant."

CONNECTIONS


1176

First run wires from each end of battery to the binding posts on switchboard marked **BATTERY.** Look at voltmeter and if it shows about 32 volts the connections are right. If the pointer does not move at all, or moves backward, reverse the wires. This precaution must be taken, for a wrong connection here will be ruinous. If battery is close to switchboard, use about No. 10 copper wire; if at a distance, use larger wire in proportion. All points on the switchboard and generator are lettered. Connect them accordingly and the plant will be ready to run.

OPERATION

The **PROPER CHARGE RATE** in amperes for this plant is marked on the ammeter by a red line. Adjust the pointer to the mark by turning rheostat. If battery has been completely discharged down to 29 volts, approximately 8 hours time at that rate is required to give a full charge. A slower rate will take longer and a faster rate a shorter time, but the charge is not so lasting if put in too fast. A short charge given each time the engine is run for other service is good practice. A full charge: If, while charging, the battery begins to gas freely, the acid looks cloudy, due to small bubbles, and the voltmeter shows about 40, consider the battery fully charged. **BUT DO NOT GO BY VOLTAGE ALONE,** the other two conditions must prevail. Do not allow temperature of battery to rise above 100 degrees F. while charging. Do not bring open flame near during or immediately after charge. When the voltage has dropped **ON DISCHARGE** to 29, the load should be taken off of battery. This is the point of **COMPLETE DISCHARGE** and it is exhausted. Serious damage will be done if load is left on and battery runs on down. Carefully avoid doing it. Start generator and put in at least a partial charge, completing at earliest convenience. The lights may be burned at the same time battery is being charged if care be taken not to overload the generator. Reduce current to the battery by turning rheostat, if many lights are to be used, while charging.

APPARATUS ON SWITCHBOARD

AMMETER: Shows amount of current flowing to and from the battery. Pointer swings to the left on charge, to the right on discharge.

VOLTMETER: Shows voltage of battery. See under **OPERATION.**

CHARGING SWITCH, single blade: Closed for charging, open at all other times.

LIGHTING SWITCH, double blade: Controls circuit to lamps. May be closed continuously if desired.

McDONALD ELECTRIC LIGHT PLANTS

FUSES: Protect generator and battery from short circuit. Replace with same size (30 amperes) if these should burn out.

CIRCUIT BREAKER: Automatically closes and opens circuit between battery and generator. Needs no attention if in working order.

RHEOSTAT: Regulates charging current.

CARE OF PLANT

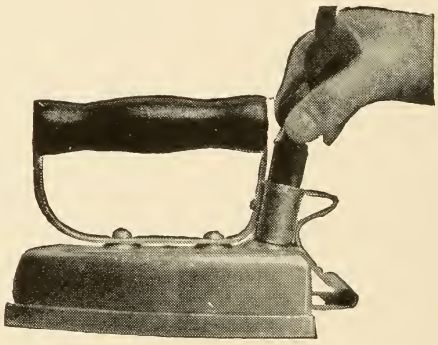
GENERATOR: Fill the oil chambers with a high grade bearing oil only to such height that oil rings will carry it up onto shaft. See that rings revolve freely. Keep brushes (carbon blocks), brush-holders and commutator (band of copper bars), **FREE OF OIL OR DIRT.** Neglect in this is the cause of much brush trouble. Cover the generator when not in use. Be sure that brush-holder springs press the brushes firmly against commutator and that the wearing surfaces fit properly. If commutator is smooth with a glossy chocolate color leave it alone except to wipe clean. Should it become rough and black, clean with No. 00 sandpaper, held on while running.

HOW MANY LAMPS TO USE AND HOW LARGE

As a guide to the number of lamps that will be required in various rooms and the proper candle power, we submit the following:

IN THE HOME

PARLOR: If this is of average size, 9 to 11 feet high, floor space 12 x 14 feet, two 32-candlepower, 40-watt Mazda lamps in the middle of the room will give a fair light. To get a better effect install a 4 or 5-light fixture, using 16-candlepower, 20-watt lamps, and control fixture by means of a switch located near entrance to room. Pull sockets are desirable so that part of the lamps may be turned off.



LIVING ROOM: A 40-watt lamp is enough, though better light will be secured for the same amount of power if a 20-watt lamp is used in each end of the room or a 3 or 4-light chandelier with 16-candlepower lamps.

DINING ROOM: One 25-watt over center of table will do if table is small. If long, use 2 or 3-light chandelier. A more artistic effect can be secured in a "shower" fixture.

KITCHEN: Needs as good light and as much as any other room in the house. Hang one 20-watt lamp two feet to the left of stove and about over the front edge. Place another over work table and one in a ceiling receptacle in the center of the room, controlled by a switch. Place a 20-watt lamp in the pantry. Good light in the kitchen saves both food and eyesight.

HALLS AND CLOSETS: One 10-watt lamp in each closet or hall.

BATHROOM: Two 10-watt lamps on brackets on each side of the mirror or wash-stand.

BEDROOMS: One 20-watt lamp in the middle of the room will do. In a lady's bedroom, a bracket light on each side of the dresser is a great convenience. The center light can be turned on and off from either the doorway or the bed by locating three-way switches on the wall at convenient places.

PORCH AND YARD: A 20-watt lamp controlled by a switch in the hall. In the country it is a great convenience to have one or two lights on posts to light the drive and the barnyard. These can be controlled by switches in the house or barn, or from both places by using three-way switches.

STOREROOM AND CELLAR: One or two lights will be a great help.

McDONALD ELECTRIC LIGHT PLANTS

HOW MANY LAMPS TO USE AND HOW LARGE—CONTINUED

BARN, HOG HOUSE AND CHICKEN HOUSE

Use 20-watt lamps where needed.

COUNTRY STORE

If the room is of average size, say 22 feet wide, 80 feet long and 14 feet high, with two show windows, a good arrangement would be about as follows:

Should probably use two or more 20-watt or 40-watt lamps in each window, depending on how attractively the windows are displayed. Use two rows of 40-watt lamps hung about eight feet above floor in store; use five lamps per row. Start eight feet from back wall and space lamps fifteen feet apart. Rows should be directly over the side counters. There should also be two to four 20-watt lights in the basement, controlled by a snap switch in the stairway. A few strong lights, 40-watt or more, provided with porcelain enameled steel reflectors, should be used for outside illumination. Also one 20-watt lamp over bookkeeper's desk and one over manager's desk.

The number of lamps or volume of light to use depends largely on the amount of money you wish to spend. Artistic lighting, wherein the indirect reflected light or artistic shaded effects are obtained, will necessitate large increases over amounts indicated in the schedules, but for all practical purposes the figures are satisfactory.

TECHNICAL TERMS AND THEIR MEANINGS

For the information of people who are not electricians we explain below a few of the electrical words and phrases used in this catalogue:

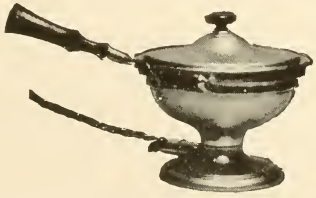
AMPERE: This is the unit of current or flow of electricity. A certain amount of current is necessary to produce a given amount of light or a given amount of power. A certain number of volts is required to force this amount of current through lamps or other devices. Comparing this with water, we have gallons per minute as similar to amperes; and pound per square inch resembling volts.

AMPERE-HOUR: This is the unit of storage-battery capacity. For instance, a 40-ampere hour battery is one which, when full, will give a current flow of 1 ampere for 40 hours, or 2 amperes for 20 hours, etc.

Ampere hours corresponds to gallon in water storage.

AMPERE METER: An instrument for measuring, in amperes, the amount of electric current flowing in the circuit.

AMPERES: Watts divided by volts.



BRUSHES: The small carbon blocks on a dynamo which collect the current from the rotating commutator.

CELL: One complete unit of a storage battery consists of jar, plates and electrolyte. See illustration on page 1030.

COMMUTATOR: The round copper-barred portion of the dynamo from which the current is collected by means of the carbon blocks, called brushes.

CURRENT: The amount of electricity that flows. It is measured in amperes.

DYNAMO: Also called Generator. A machine that uses up mechanical power (as furnished by the engine, waterwheel or other power that drives the dynamo) and changes this mechanical power into electrical power in the form of electric current.

McDONALD ELECTRIC LIGHT PLANTS

TECHNICAL TERMS AND THEIR MEANINGS—CONTINUED

DISTILLED WATER: Water that has been condensed from steam.

DENSITY OF ELECTROLYTE: The specific gravity of the electrolyte. The number of times a given volume of electrolyte is heavier than the same volume of pure water.

ELECTROLYTE: The battery solution. A mixture of sulphuric acid and water in which the plates of the lead storage battery are immersed.

FAHRENHEIT: The scale into which the thermometers ordinarily in use are divided.

FILAMENT: The light-giving part of an incandescent electric lamp.

HORSE POWER: The unit of mechanical power. Equals 746 watts of electrical power.

HYDROMETER: An instrument or gauge for measuring the density or specific gravity of a liquid.

KILOWATT: Often abbreviated to K. W. means 1,000 watts. 21 K. W. equals 21,000 watts.

MOTOR: A machine that uses up the electrical power that is supplied by a dynamo or battery and changes it into mechanical power to drive machinery, etc.

NEGATIVE PLATE: The grayish colored plate of a lead storage battery.

NORMAL RATE OF CHARGE: The number of amperes which must be forced into a battery to properly charge, which varies with the type of battery. Plante and Faure batteries require eight hours for normal charge; Edison, seven hours.

OHM: This is the unit of resistance to the flow of electric current and represents the electrical friction which opposes the passage of amperes over any path or conductor. A 16-candle power 25-watt Tungsten lamp has a resistance of 45 ohms, and on a 30-volt system two-thirds of an ampere will be forced through the lamp by the 30-volt electrical pressure.

This electrical resistance (measured in ohms) causes in any conductor carrying an electrical current a drop in the electrical pressure, decrease or which drop increases in proportion to the distance, to the number of amperes of current flowing, and decreases as the size of wire increases.

The resistance in ohms and drop in volts varies with different metals used for conductors, but copper is so universally used for carrying electric lighting current that its use is understood unless otherwise stated.

POSITIVE PLATE: The brown or chocolate colored plate of a lead storage battery.

PRESSURE: Voltage. That which tends to cause an electric current to flow. Similar to pounds per square inch in a water pipe.

PRIMARY BATTERY OR CELL: This term generally refers to a cell from which electrical energy is obtained through the action of chemicals upon metals and carbon, such as the Blue Stone Cell used in telegraph work, commonly called the Crow-foot cell, the common bell battery, usually using sal-ammoniac with a zinc and carbon element, a common dry cell which is in reality a semi-dry cell sealed to prevent the escape of the moisture.

SPECIFIC GRAVITY: Density. The number of times any substance is heavier than an equal volume of pure water.

STORAGE BATTERY OR CELL: Usually consists of a metallic couple and oxides of the metal, which undergo chemical changes when charged with electrical energy. This couple gives up chemical energy brought about by a reversible action of the metallic oxides.

SULPHATE: A white substance that sometimes forms on the plates of a lead-plate storage battery when not properly cared for.

SWITCHBOARD: The panel upon which measuring instruments, controlling switches, rheostat, etc., necessary for the operation of the plant, are mounted.

TUNGSTEN FILAMENT: A filament for an incandescent electric lamp, made from the two-thirds rare metal, tungsten.

McDONALD ELECTRIC LIGHT PLANTS

TECHNICAL TERMS AND THEIR MEANINGS—CONTINUED

VOLT: This is the unit of electrical pressure and is similar to water pressure in pounds per square inch. A new dry battery of the ordinary type gives about 1½ volts pressure.

The height of a tank determines the pressure at faucet, and, to obtain 30 pounds water pressure, the tank should be approximately 70 feet above outlet.

Similarly, the number of battery cells connected in series (see definition of series) determines the voltage and to obtain 30 volts electrical pressure as used in plants described in this booklet, requires 15 cells of lead storage battery connected in series, as each cell gives a pressure of about two volts. However, 16 cells are furnished, which provide a little extra pressure to take care of losses in wires to lights and drop in battery pressure as the battery becomes empty.

Thirty volts are required to force sufficient current through a 30-volt lamp to produce proper light just as a certain pressure is required in a water system to force — say — one gallon of water per minute through a pipe. Assuming this certain pressure to be 30 pounds—a **LESSER PRESSURE** would force through a correspondingly **SMALLER QUANTITY.** Similarly, **LESS** electrical pressure than 30 volts will force through a 30-volt lamp, a **LESSER** amount current will produce **LESS LIGHT.**

VOLTS: Watts divided by amperes.

VOLTAGE: Difference of electrical pressure, or that which tends to make current flow.

VOLT METER: An instrument for measuring voltage.

WATT: This is the unit of electrical energy. The horse power as used in rating engines is equal to 746 watts. Volts times amperes, equals watts.

EXPLANATION OF WIRING TERMS

CLEAT WORK: This is also called open work and is done by fastening the wires, etc., to porcelain supports mounted on walls, ceilings, etc. This method is cheap and safe, but unsightly.

Cleat work is usually used in barns and factories and often in store buildings. The principal objection to its use is the appearance.

It is also possible to enclose the wires in narrow wood or metal molding, which makes a better looking job, but costs from 20 to 100 per cent more.

CONCEALED WORK: Also known as "knob and tube work." By this method the wires are concealed between floor and ceiling or between walls, and are run through porcelain tubes which are inserted in holes bored through floor and wall timbers; or the wires are attached to porcelain knobs attached to timbers.

Concealed work is quickly and cheaply done while houses are being built and before floors or plastering is started. In old or finished houses it is necessary to take up one or two floor boards across each room and is somewhat slow and expensive work. The experienced wire men can do this class of work much more rapidly than amateurs, with little or no damage to floors, walls or furniture, and with little dirt.

OUTLET: This means a place prepared for attaching a drop, switch, fixture, etc., and includes bringing wires to that point.

SWITCH: A device usually mounted on an outlet at some convenient spot on a wall and used to turn on or off lights, fans or other devices located out of easy reach.

EUREKA ELECTRIC VACUUM CLEANER

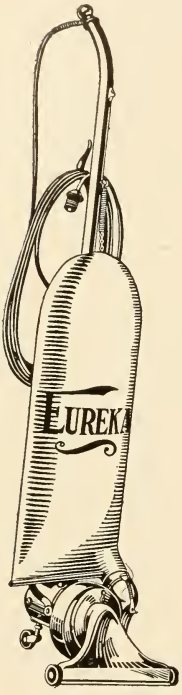


Plate E10541

With the hose attachments, every piece of furniture in your home can be thoroughly and quickly cleaned. Every corner and crevice, no matter how difficult to get at, can be easily reached. The extra attachments give the Eureka a hundred cleaning uses.

The connection of the hose attachment to the Eureka is simple and easy. You can quickly change from cleaning carpets to cleaning mattresses, furniture, etc. There is absolutely nothing to screw on or take off. Just let the nozzle fold under the machine and you are all ready to use the hose.

The curve in the end of the handle of the Eureka fits the natural position of your hand when drawing the machine back and forth.

The entire machine rests on three small rollers. These rollers allow the Eureka to glide over the floor with such an easy smoothness that you can accomplish the most rapid cleaning work with the least possible effort.

It has a button switch by which the electricity is controlled. You simply press this button lightly forward with your thumb to start the machine and draw it lightly backward when you wish to stop.

The floor brush is furnished with every Eureka cleaner without charge. When the floor brush is attached, the Eureka is sure to pick up all threads, ravelings, lint, hair, etc., from the carpets and rugs.

The bristles loosen these fine particles which become fastened in the nap of the carpets and the strong, powerful suction carries them quickly to the bag. The Eureka can be used with or without this attachment.

The cleaning nozzle is 12 inches wide and cleans a very large space with every stroke of the machine. No matter at what angle you hold the handle, this nozzle always keeps the proper position on the floor.

The Eureka is light, weighing only 10 pounds. You can carry it about the house or up and down the stairs with hardly any effort.

The dust bag holds a large quantity of dust and you will find it very simple to remove and replace. You empty it by removing the bag clamp and letting the dust fall out.

Price, for Cleaning All Floor Coverings and Surfaces, Equipped with Floor Brush for Picking up Threads, Lint, Ravelings, Hair, etc..... **40.00**
" Complete with Attachments for Cleaning All Household Furnishings..... **47.50**

STANDARD SET OF ATTACHMENTS ONLY

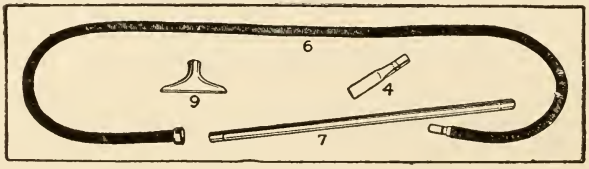


Plate E10542

No. 4 Eureka Attachment for Cleaning Radiators, Book-Cases, etc..... **.50**
" 6 " 8-foot 1¼-inch Web Covered Hose, with Swivel Attachment. The Swivel Joint allows the Cleaning Tool to be turned about without turning the Hose..... **3.50**
" 7 Eureka 30-inch Extension Tubing..... **.80**
" 9 " 7 " Aluminum Nozzle, for Portieres, Mattresses, Upholstery, etc. **.90**

ARCO WAND VACUUM CLEANERS

Nos. 341 AND 361

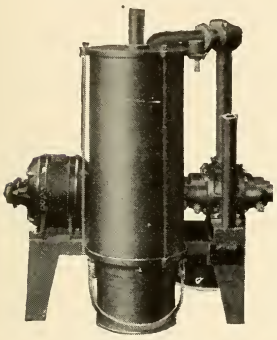


Plate E10551

Nos. 34, 36 AND 48

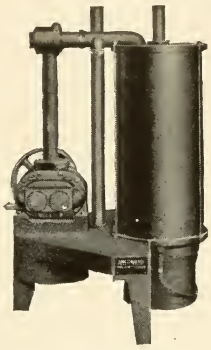


Plate E10552

Nos. 481 AND 692

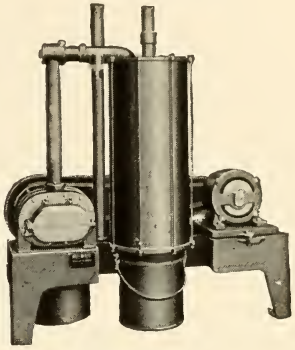


Plate E10553

No.	Capacity Sweepers	Motor** H. P.	Dimensions, Inches Length	Width	Height	Equip. Includ. No.	Price Each
34*	1	...	29	20	41	3	115.00
341	1	½	36	21	41	3	175.00
341T	1	½	37	24	48	3	215.00
36*	1	...	32	22	50	4	175.00
361	1	1	43	23	50	4	290.00
361T	1	1	47	26	55	4	345.00
48*	1	...	35	25	54	5	290.00
481	1	2	58	24	54	5	440.00
481T	1	2	57	28	62	5	520.00
692	2	3	72	29	72	6	700.00

*Without motors, to be connected to gasoline engine or line shaft.

**Prices for machines with single-phase, odd frequency motors quoted on application.

Prices do not include cost of labor, pipe connections and freight.

If the cleaner is placed next to the wall, provide fifteen inches space between the machine and the wall. Care should be taken to set the cleaner machine level.

Pump pulleys: Nos. 34 and 36 machines are regularly equipped with pump pulley 10-inch diameter by 2-inch face. Can furnish pulleys 8-inch, 6-inch and 4-inch diameter by 2½-inch face for these machines if specified.

Nos. 341T, 361T AND 481T

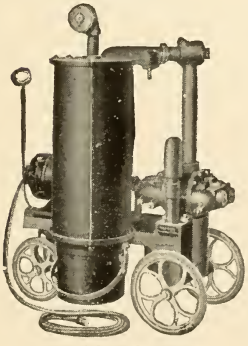


Plate E10554

No. 48 machine is regularly equipped with pump pulley 12-inch diameter by 2½-inch face. Can furnish pulleys for this machine 10-inch, 8-inch, 6-inch and 4-inch diameter by 3½-inch face if specified.

TRUCK TYPE

No. 341T. Suitable for use in buildings already erected where it is difficult to install piping for stationary type such as office buildings, hotels, apartment buildings, stores, banks, libraries, hospitals, laboratories, telephone exchanges and garages.

No. 361T. Suitable for buildings as above, where greater capacity is required to meet peculiar building conditions in the removal of large and frequent accumulations of dirt.

No. 481T. Suitable for use in factories and manufacturing buildings, having larger floor areas, or where the accumulation cleaned up contains valuable material to be reclaimed.

ARCO WAND VACUUM CLEANERS

CLEANING TOOLS

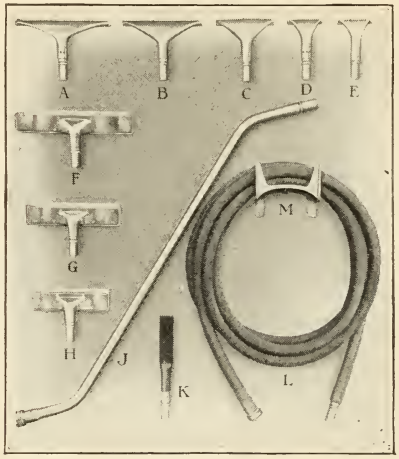


Plate E10561

No. 3 EQUIPMENT, FURNISHED WITH MACHINES Nos. 34, 341

J—One wand (handle).
K—One tuft cleaner.
C—One 7-inch renovator.
H—One 10-inch felted sweeper.
M—One hose bracket.
L—One 35-foot length 1-inch fabric hose and coupling.
Same as for No. 341-T except one 25-foot hose without bracket.

No. 5 EQUIPMENT, FURNISHED WITH MACHINES Nos. 48, 481

J—One wand (handle).
K—One tuft cleaner.
D—One 4-in. renovator (adjustable suction type).
A—One 12-in. " " " "
F—One 15-inch felted sweeper.
M—One hose bracket.
Two 25-foot lengths 1¼-inch rubber hose and couplings.
Same as for No. 481-T except one 50-foot hose and no bracket.

No. 4 EQUIPMENT, FURNISHED WITH MACHINES Nos. 36, 361

J—One wand (handle).
K—One tuft cleaner.
E—One 4-inch renovator.
B—One 10-inch renovator.
G—One 12-inch felted sweeper.
M—One hose bracket.
Two 25-foot lengths 1-inch rubber hose and couplings.
Same as for No. 361-T except one 35-foot hose without bracket.

No. 6 EQUIPMENT, FURNISHED WITH MACHINE No. 692

J—Two wands (handles).
K—Two tuft cleaners.
D—Two 4-in. renovators (adjustable suction type).
A—Two 12-inch renovators (adjustable suction type).
F—Two 15-inch felted sweepers.
M—Two hose brackets.
Four 25-foot lengths 1½-inch rubber hose and couplings.

HOSE AND PIPING

	Hose		Piping			Hose		Piping	
Number	Lengths	Size Inches	Max. Lengths, Ft.	Size Inches	Number	Lengths	Size Inches	Max. Lengths, Ft.	Size Inches
341, 34	1–35 ft.	1	100	1¼	481, 48	1–100 ft.	1¼	350	2
361, 36	1–75 "	1	200	1½	692	2–100 "	1½	500†	3

Exhaust pipe should be same size as cleaner main.

Maximum length is distance measured from machine to the most remote inlet coupling, regardless of the number of mains and risers used.

†Or either of the following combinations can be used. 320 feet of 3-inch main connected to any 2½-inch riser not exceeding 80 feet in height; or 120 feet of 3-inch main connected to any 2½-inch riser not exceeding 160 feet in height.

ARCO WAND VACUUM CLEANERS

EXTRA EQUIPMENT

The following prices apply to tools and parts ordered separately.

TOOLS AND PARTS

Description	Hose Size Inches	Price Each
Brush, 12-in. Floor	1	6.00
" 12 " "	1¼ or 1½	6.70
Duster	1	6.50
"	1¼ or 1½	9.90
Felted Sweeper, 10-in.	1	4.10
" " 12 "	1	4.30
" " 15 "	1¼ or 1½	7.95
" " 18 "	1	6.85
" " 18 "	1¼ or 1½	8.65
Felts for 10-in. Felted Sweeper	1	1.60
" " 12 " " "	1	1.85
" " 15 " " "	1¼ or 1½	3.05
" " 18 " " "	1	3.65
Felts for 18-in. Felted Sweeper	1¼ or 1½	3.65
Renovator, 4-in.	1	2.50
" 4 " Adj. Suction	1	3.00
" 4 " " "	1¼ or 1½	6.00
" 7 "	1	3.60
" 10 "	1	3.50
" 12 " Adj. Suction	1	4.15
" 12 " " "	1¼ or 1½	6.60
Tuft Cleaner	1	.95
" "	1¼ or 1½	1.25
Wand Handle, No. 3	1	4.50
" " " 4	1	4.75
" " " 5	1¼ or 1½	7.30

INLET COUPLINGS

Description	Hose Size Inches	Price Each
Inlet Couplings, Wall or Floor	1	2.50
" " Lock and Key	1	3.50
" " Wall or Floor	1¼ or 1½	3.50
" " Lock and Key	1¼ or 1½	4.50
" " Bushings, Length 1 in. Reg. Furnished	1	.20
Inlet Coupling Bushings, Length 1½, 2½, 3½, 4½, 5½, or 6½ inches	1	.50
Inlet Coupling Spacing Collars, Brass, for Concealed Piping: Length, ⅜ inch	1	.55
" ¾ "	1	.70
" 1¼ inches	1	.90
" 1¾ "	1	1.10
" 2¼ "	1	1.30
Inlet Coupling, Fitting Sleeve, Cast Iron, for Exposed Piping: 1½ or 2 inches	1	.35
2½ or 3 "	1¼ or 1½	.35

HOSE

Description	Length Feet	Price Each
Hose, Fabric, 1 in. with Coupling	10	6.55
" " 1 " " "	15	8.70
" " 1 " " "	25	13.00
" " 1 " " "	35	17.30
" Rubber 1 " " "	10	7.05
" " 1 " " "	15	9.45
" " 1 " " "	25	14.25
" " 1 " " "	35	19.05
" " or Fabric, 1¼ inch, with Coupling	15	11.35
Hose, Rubber or Fabric, 1¼ inch, with Coupling	25	16.75
Hose, Rubber or Fabric, 1¼ inch, with Coupling	50	30.25
Hose, Rubber or Fabric, 1½ inch, with Coupling	15	12.25
Hose, Rubber or Fabric, 1½ inch, with Coupling	25	18.25
Hose, Rubber or Fabric, 1½ inch, with Coupling	50	33.25
Hose, Fabric, 1 inch, without Coupling	1	.43
" Rubber 1 " " "	1	.48
" " or Fabric, 1¼ inch without Coupling	1	.54
Hose, Rubber or Fabric, 1½ inch, without Coupling	1	.60
Hose Coupling, 1 inch	..	2.25
" " 1¼ or 1½ inch	..	3.25
" Bracket, 1 inch	..	1.00
" " 1¼ or 1½ inch	..	1.25

McDONALD GAS COCKS

On the following pages we illustrate and list the line of Gas Service, Meter and Stove Cocks which we manufacture.

We have been engaged in the manufacture of these goods for over 30 years, and, having skilled mechanics and a thoroughly equipped factory, we are enabled to produce Gas Cocks of high quality at reasonable prices.

Only **NEW METAL** is used in our Gas Cocks, and they are carefully made in every way. Particular attention is paid to grinding the key into the body, our special grinding machines enabling us to do perfect grinding. Our Gas Cocks receive the same care in every detail of their manufacture as we give our highest grade of Stop Cocks which are tested 200 pounds.

Every Gas Cock is thoroughly tested under pressure and has our firm name stamped on it.

After testing, all our Gas Cocks are wrapped in packages and labeled, keeping them clean, and the packages can be piled or stacked on shelves, which is a great convenience to the storekeeper.

Our Gas Cocks are **GUARANTEED** to give satisfactory service under reasonable conditions.

We manufacture Extra Heavy Gas Cocks as well as Standard, for places which require a heavier Gas Cock than Standard.

McDONALD GAS SERVICE COCKS

TEE HEAD

WITHOUT CHECK

Plate E10591

WITH CHECK

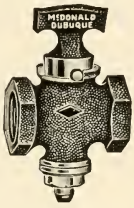


Plate E10592

Size.....inches	⅜	½	¾	1	1¼
Price, without Check, Standard.....each	1.00	1.10	1.30	2.10	3.25
" " " Extra Heavy.... "	1.20	1.30	1.80	3.00	4.50
Price, with Check, Standard.....each	1.15	1.30	1.55	2.40	3.70
" " " Extra Heavy..... "	1.35	1.50	2.05	3.30	4.95

TEE HEAD, MALE AND FEMALE

WITHOUT CHECK

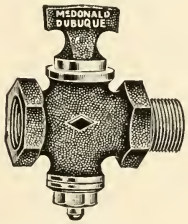


Plate E10593

WITH CHECK

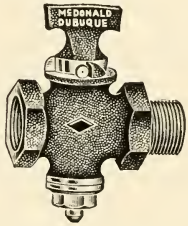


Plate E10594

Size.....inches	½	¾	1	1¼
Price, without Check Standard.....each	1.30	1.55	2.40	3.65
" with Check, Standard..... "	1.50	1.80	2.70	4.10

FLAT HEAD

WITHOUT CHECK

Plate E10595

WITH CHECK

Plate E10596

Size.....inches	¼	⅜	½	¾	1
Price, without Check, Standard.....each	.90	1.00	1.10	1.30	2.10
" " " Extra Heavy.... "	1.10	1.20	1.30	1.80	3.00
Price, with Check, Standard.....each	1.05	1.15	1.30	1.55	2.40
" " " Extra Heavy..... "	1.25	1.35	1.50	2.05	3.30
Size.....inches	1¼	1½	2	2½	3
Price, without Check, Standard.....each	3.25	4.60	8.00	17.50	27.00
" " " Extra Heavy.... "	4.50	6.50	11.20	24.50	37.80
Price, with Check, Standard.....each	3.70	5.10	8.75	18.50	28.25
" " " Extra Heavy..... "	4.95	7.00	11.95	25.50	39.05

McDONALD GAS SERVICE COCKS

FLAT HEAD, MALE AND FEMALE

WITHOUT CHECK

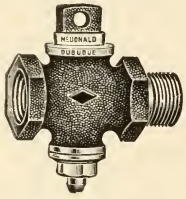


Plate E10601

WITH CHECK

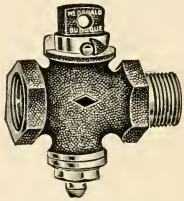


Plate E10602

Size ..... inches	½	¾	1	1¼
Price, without Check, Standard ..... each	1.30	1.55	2.40	3.65
" with " " ..... "	1.50	1.80	2.70	4.10

SQUARE HEAD

WITHOUT CHECK

Plate E10603

WITH CHECK

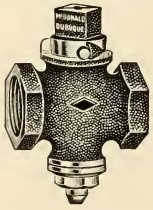


Plate E10604

Size ..... inches	⅛	¼	⅜	½	¾	1
Price, without Check, Standard ..... each	.90	.90	1.00	1.10	1.30	2.10
" " " Extra Heavy.... "	1.10	1.10	1.20	1.30	1.80	3.00
Price, with Check, Standard ..... each	....	1.05	1.15	1.30	1.55	2.40
" " " Extra Heavy..... "	....	1.25	1.35	1.50	2.05	3.30
Size ..... inches	1¼	1½	2	2½	3	....
Price, without Check, Standard ..... each	3.25	4.60	8.00	17.50	27.00	....
" " " Extra Heavy.... "	4.50	6.50	11.20	24.50	37.80	....
Price, with Check, Standard ..... each	3.70	5.10	8.75	18.50	28.25	....
" " " Extra Heavy..... "	4.95	7.00	11.95	25.50	39.05	....

SQUARE HEAD, MALE AND FEMALE

WITHOUT CHECK

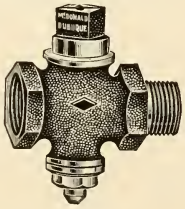


Plate E10605

WITH CHECK

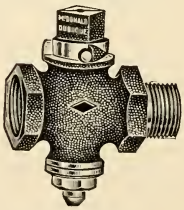


Plate E10606

Size ..... inches	½	¾	1	1¼
Price, without Check, Standard ..... each	1.30	1.55	2.40	3.65
" with " " ..... "	1.50	1.80	2.70	4.10

McDONALD GAS SERVICE COCKS

SOCKET HEAD, MALLEABLE HANDLE

WITHOUT CHECK

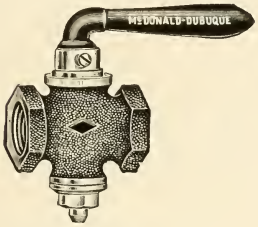


Plate E10611

WITH CHECK

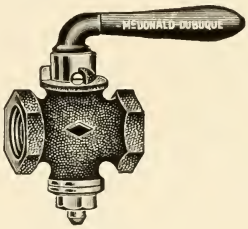


Plate E10612

Size ..... inches	½	¾	1
Price, without Check, Standard ..... each	1.40	1.60	2.45
" with " " ..... "	1.60	1.85	2.75

SOCKET HEAD, MALE AND FEMALE

WITHOUT CHECK

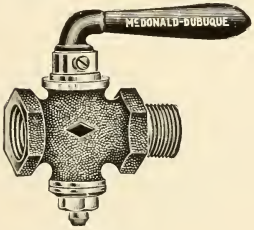


Plate E10613

WITH CHECK

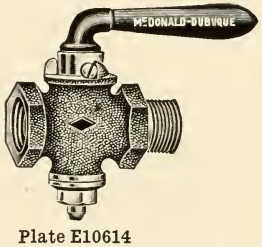


Plate E10614

Size ..... inches	½	¾	1
Price, without Check, Standard ..... each	1.60	1.85	2.75
" with " " ..... "	1.80	2.10	3.05

Malleable handles are sent with all socket head service cocks.

MINNEAPOLIS

FEMALE

Plate E10615

MALE AND FEMALE

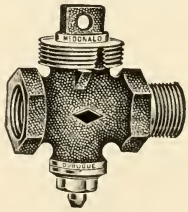


Plate E10616

Size ..... inches	¾	1
Size of Pipe Thread on Top of Body ..... "	1¼	1¼
Price, Male, Standard ..... each	1.80	2.75
" " " with Check ..... "	2.05	3.05
" Male and Female, Standard ..... "	2.05	3.05
" " " " with Check ..... "	2.30	3.35

McDONALD GAS SERVICE COCKS

LOCK WING

FLAT HEAD

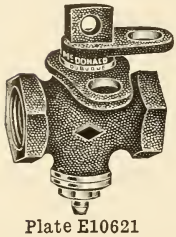


Plate E10621

SQUARE HEAD

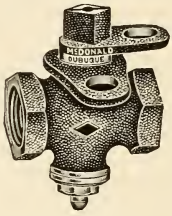


Plate E10622

SOLID LEVER HANDLE

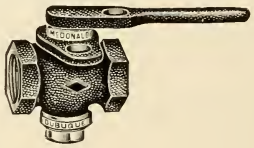


Plate E10623

Size ..... inches	½	¾	1	1¼	1½	2
Price, Flat Head, Standard ..... each	1.40	1.60	2.50	3.85	5.35	9.00
" " " Extra Heavy ..... "	....	2.10	....	....	....	....
" Square Head, Standard ..... "	1.40	1.60	2.50	3.85	5.35	9.00
" " " Extra Heavy ..... "	....	2.10	....	....	....	....
" Solid Lever Handle, Standard ..... "	1.70	....	....	....	....	....

MALE AND FEMALE

FLAT HEAD

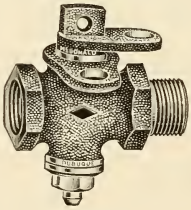


Plate E10624

SQUARE HEAD

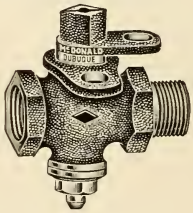


Plate E10625

Size ..... inches	½	¾	1
Price, Flat Head, Standard ..... each	1.60	1.85	2.80
" Square Head, Standard ..... "	1.60	1.85	2.80

SOCKET HEAD

FEMALE

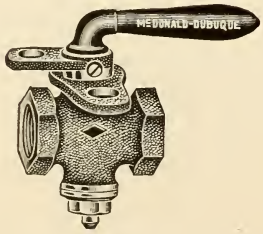


Plate E10626

MALE AND FEMALE

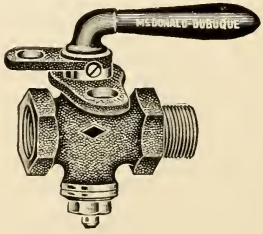


Plate E10627

Size ..... inches	½	¾	1
Price, Female, Standard ..... each	1.70	1.90	2.85
" Male and Female, Standard ..... "	1.90	2.15	3.15

Malleable handles are sent with all socket head service cocks.

McDONALD GAS METER COCKS

FLAT HEAD

WITHOUT CHECK

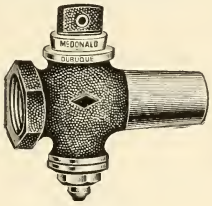


Plate E10631

WITH CHECK

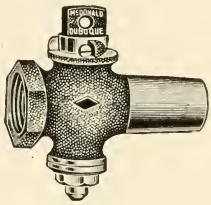


Plate E10632

Size.....inches	½	¾	1
Price, without Check, Standard.....each	1.10	1.30	2.10
" with Check, Standard..... "	1.30	1.55	2.40

FLAT HEAD, MALE THREAD

WITHOUT CHECK

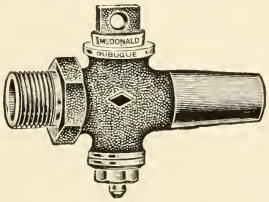


Plate E10633

WITH CHECK

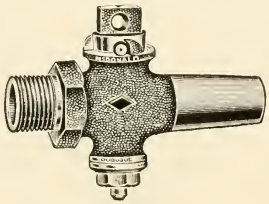


Plate E10634

Size.....inches	½	¾	1
Price, without Check, Standard.....each	1.30	1.55	2.40
" with Check, Standard..... "	1.50	1.80	2.70

SOCKET HEAD

WITHOUT CHECK

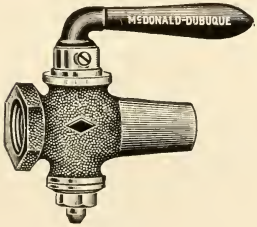


Plate E10635

WITH CHECK

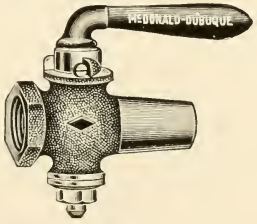


Plate E10636

Size.....inches	½	¾	1
Price, without Check, Standard.....each	1.40	1.60	2.45
" with Check, Standard..... "	1.60	1.85	2.75

Malleable handles are sent with all socket head meter cocks.

McDONALD GAS METER COCKS

SOCKET HEAD, MALE THREAD

WITHOUT CHECK

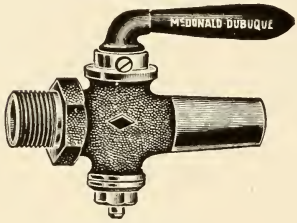


Plate E10641

WITH CHECK

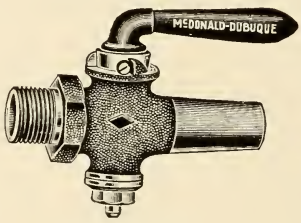


Plate E10642

Size ..... inches	½	¾	1
Price, without Check, Standard ..... each	1.60	1.85	2.75
" with " " ..... "	1.80	2.10	3.05

Malleable handles are always sent with socket head meter cocks.

LOCK WING

FLAT HEAD

Plate E10643

SQUARE HEAD

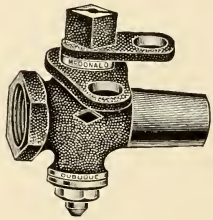


Plate E10644

Size ..... inches	½	¾	1
Price, Flat Head, Standard ..... each	1.40	1.60	2.50
" Square Head Standard ..... "	1.40	1.60	2.50

LOCK WING, MALE THREAD

FLAT HEAD

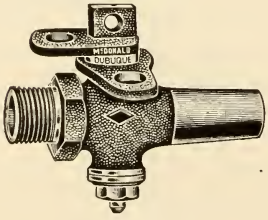


Plate E10645

SQUARE HEAD

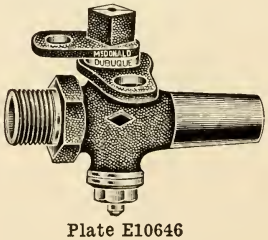


Plate E10646

Size ..... inches	½	¾	1
Price, Flat Head, Standard ..... each	1.60	1.85	2.80
" Square Head Standard ..... "	1.60	1.85	2.80

McDONALD GAS METER COCKS

SOCKET HEAD, LOCK WING

FEMALE

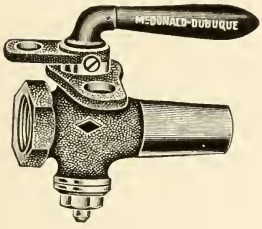


Plate E10651

MALE

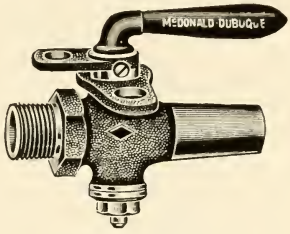


Plate E10652

Size.....inches	½	¾	1
Price, Female, Standard.....each	1.70	1.90	2.85
" Male, Standard..... "	1.90	2.15	3.15

Malleable handles are always sent with socket head meter cocks.

GAS UNION METER COCKS

FLAT HEAD

WITHOUT CHECK

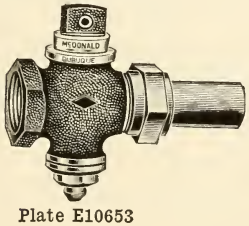


Plate E10653

WITH CHECK

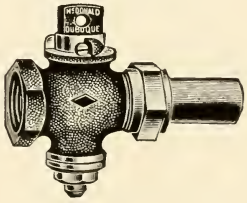


Plate E10654

Size.....inches	½	¾	1	1¼	1½	2
Price, without Check, Standard....each	1.70	2.05	3.10	4.65	6.70	10.90
" " " Extra Heavy "	1.90	2.55	4.00	5.90	8.60	14.10
Price, with Check Standard.....each	1.90	2.30	3.40	5.10	7.20	11.65
" " " Extra Heavy.... "	2.10	2.80	4.30	6.35	9.10	14.85

FLAT HEAD, MALE THREAD

WITHOUT CHECK

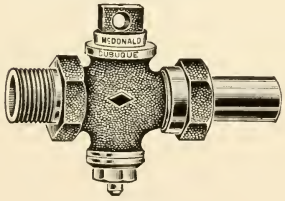


Plate E10655

WITH CHECK

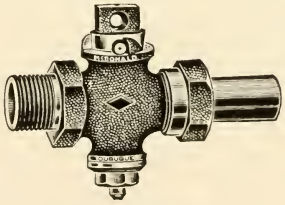


Plate E10656

Size.....inches	½	¾	1	1¼
Price, without Check Standard.....each	1.90	2.30	3.40	5.05
" with Check Standard..... "	2.10	2.55	3.70	5.50

McDONALD GAS UNION METER COCKS

SOCKET HEAD

WITHOUT CHECK

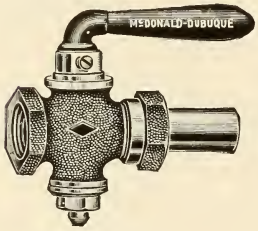


Plate E10661

WITH CHECK

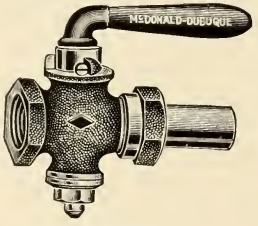


Plate E10662

Size ..... inches	½	¾	1
Price, without Check, Standard ..... each	2.00	2.35	3.45
" with " " ..... "	2.20	2.60	3.75

SOCKET HEAD, MALE THREAD

WITHOUT CHECK

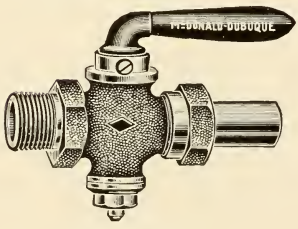


Plate E10663

WITH CHECK

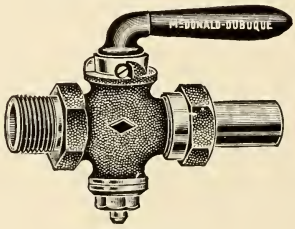


Plate E10664

Size ..... inches	½	¾	1
Price, without Check, Standard ..... each	2.20	2.60	3.75
" with " " ..... "	2.40	2.85	4.05

LOCK WING

FLAT HEAD

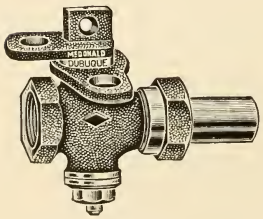


Plate E10665

SQUARE HEAD

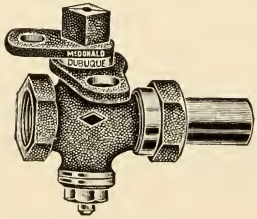


Plate E10666

SOCKET HEAD

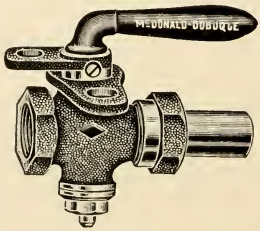


Plate E10667

Size ..... inches	½	¾	1	1¼	1½	2
Price, Flat Head, Standard ..... each	2.00	2.35	3.50	5.25	7.45	11.90
" Square " " ..... "	2.00	2.35	3.50	5.25	7.45	11.90
" Socket " " ..... "	2.30	2.65	3.85	....	....	.....

Malleable handles are always sent with socket head meter cocks.

McDONALD GAS STOVE COCKS

WITH BALL JOINT UNION COUPLINGS

FLAT HEAD

WITHOUT CHECK

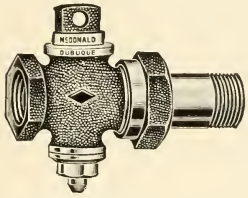


Plate E10671

WITH CHECK

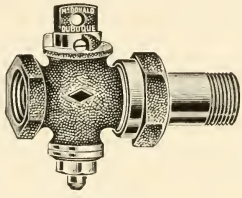


Plate E10672

Size.....inches	½	¾	1	1¼	1½	2
Price, without Check, Standard.....each	1.95	2.35	3.45	5.05	7.20	11.65
" " " Extra Heavy..... "	2.15	2.85	4.35	6.30	9.10	14.85
" with Check, Standard..... "	2.15	2.60	3.75	5.50	7.70	12.40
" " " Extra Heavy..... "	2.35	3.10	4.65	6.75	9.60	15.60

SOCKET HEAD

WITHOUT CHECK

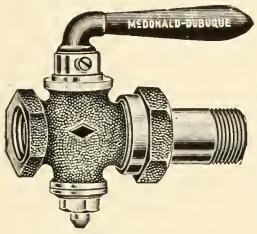


Plate E10673

WITH CHECK

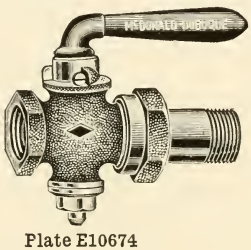


Plate E10674

Size.....inches	½	¾	1
Price, without Check, Standard.....each	2.25	2.65	3.80
" with " " ..... "	2.45	2.90	4.10

Malleable handles are always sent with socket head stove cocks.

TEE HEAD

WITHOUT CHECK

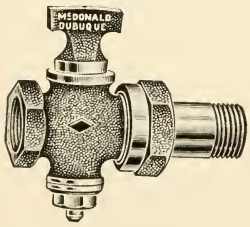


Plate E10675

WITH CHECK

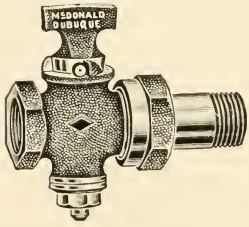


Plate E10676

Size.....inches	½	¾	1	1¼
Price, without Check, Standard.....each	1.95	2.35	3.45	5.05
" " " Extra Heavy..... "	2.15	2.85	4.35	6.30
" with Check, Standard..... "	2.15	2.60	3.75	5.50
" " " Extra Heavy..... "	2.35	3.10	4.65	6.75

McDONALD GAS COCKS

1¼-INCH, 56-OUNCE GAS SERVICE COCK

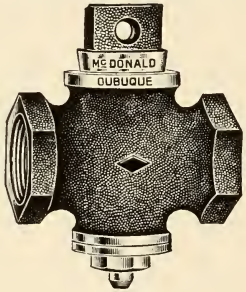


Plate E10681

This is made extra heavy, weighs 56 ounces, and meets the requirements of many gas companies for a high grade article of ample size and weight for high pressure service.
Plate E10681, 1¼ inch.....each **5.25**

ANGLE PATTERN
GAS STOVE COCK

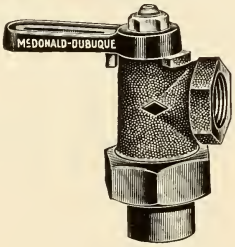


Plate E10682

RE-ENFORCED INLET
GAS SERVICE COCK

Plate E10683

ANGLE PATTERN GAS STOVE COCK

This has an inverted plug, which will not stick and has an adjustable malleable handle. Union coupling is malleable with a leather washer. Oval way outlet in plug. This stove cock is desirable where space is limited, as it saves room and fittings, and is a first class article in every way.

Size.....inches	½	¾	1
Price.....each	**2.00**	**2.15**	**5.25**

RE-ENFORCED INLET GAS SERVICE COCK

This is made in one size only, ¾-inch, and is re-enforced at the neck of inlet end, the object being to prevent that end of the cock being broken off in case of accident or collapse of building as the outlet end of the cock, being of regular strength, would break off first.
Price, ¾-inch.....each **1.80**

UNION COUPLINGS FOR GAS COCKS

PLAIN FACE LEAD PIPE

Plate E10684

BALL JOINT IRON PIPE

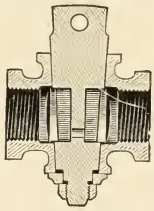
Plate E10685

Size.....inches	½	¾	1	1¼	1½	2
Plate E10684, Standard.....each	**.40**	**.50**	**.70**	**1.00**	**1.25**	**1.75**
" E10685, " ..... "	**.65**	**.80**	**1.05**	**1.40**	**1.75**	**2.50**

McDONALD EXTRA HEAVY HIGH PRESSURE GAS SERVICE COCKS

WITH DRILLED SOLID KEY

SECTIONAL VIEW SHOWING DRILLED SOLID KEY



These Gas Service Cocks are intended for High Pressure Service. They have Solid Drilled Keys, perfectly ground into the body of the cock. Regularly the hole is drilled in the key at the bottom of the opening in body of cock, as shown above, to provide drainage for condensation, but it can be drilled in at any point desired. Regularly, the hole drilled in the key is 3/16 inch, but they will be furnished with 1/8 or 1/4-inch holes, if so ordered.

FLAT HEAD

WITHOUT CHECK

Plate E10691

WITH CHECK

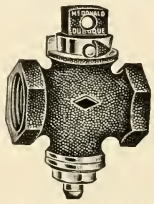


Plate E10692

Size.....inches	1/2	3/4	1
Price, without Check.....each	1.55	2.10	3.40
" with " ..... "	1.75	2.35	3.70

SQUARE HEAD

WITHOUT CHECK

Plate E10693

WITH CHECK

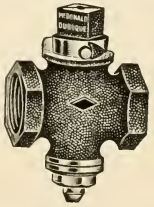


Plate E10694

Size.....inches	1/2	3/4	1
Price, without Check.....each	1.55	2.10	3.40
" with " ..... "	1.75	2.35	3.70

GAS FIXTURE FITTINGS

STANDARD STAPLE BRACKETS

STIFF BRACKET

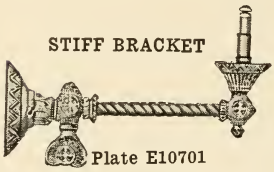


Plate E10701

ONE-SWING BRACKET

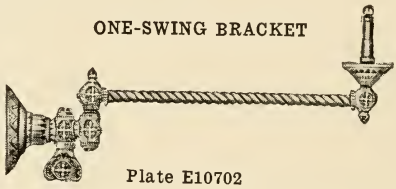


Plate E10702

Price, Stiff Brackets, 6 inches	each	.35
" One-Swing Brackets	"	.50

TWO-SWING BRACKET

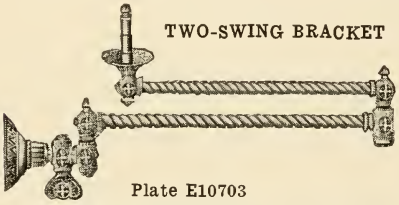


Plate E10703

THREE-SWING BRACKET

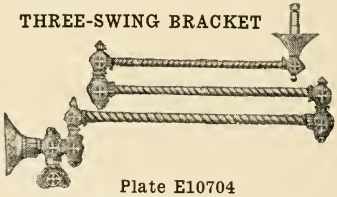


Plate E10704

Price, Two-Swing Brackets	each	.80
" Three " "	"	1.05

FITTINGS

ELL BURNER COCK

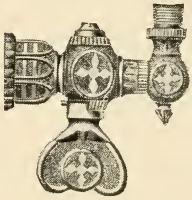


Plate E10705

BRACKET SWING COCK

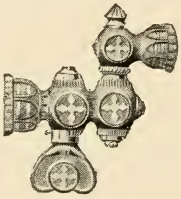


Plate E10706

UNIVERSAL BRACKET SWING COCK

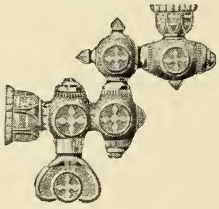


Plate E10707

ELL BURNER COCKS

Size ... inches	1/8	1/4	3/8	1/2
Price, Standard ... per dozen	4.25	4.55	5.20	6.20
" Extra Heavy ... "	....	7.15	7.80	9.10

BRACKET SWING COCKS

Size ... inches	1/8x1/8	1/4x1/8	1/4x1/4	3/8x1/8	3/8x1/4	3/8x3/8
Price, Standard ... per dozen	7.80	7.80	8.15	8.15	8.45	9.10
" Extra Heavy ... "	....	....	....	11.70	11.70	11.70

UNIVERSAL BRACKET SWING COCKS

Size ... inches	1/8x1/8	1/4x1/8	1/4x1/4	3/8x1/8	3/8x1/4	3/8x3/8
Price, Standard ... per dozen	11.70	11.70	12.05	12.05	12.35	13.00
" Extra Heavy ... "	....	....	....	15.60	15.60	16.90

GAS FIXTURE FITTINGS

STOP COCK

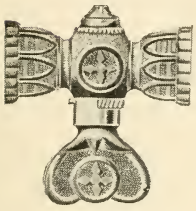


Plate E10711

INDEPENDENT COCK

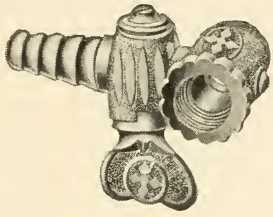


Plate E10712

PILLAR COCKS

FEMALE

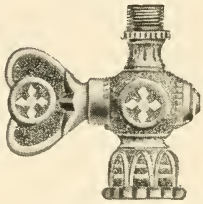


Plate E10713

MALE

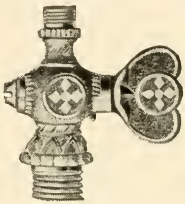


Plate E10714

STOP OR STRAIGHT COCKS

Size ..... inches	1/8x1/8	1/4x1/8	1/4x1/4	3/8x1/8	3/8x1/4	3/8x3/8	1/2x1/2
Price, Standard ..... per dozen	3.90	4.25	4.55	4.55	4.55	4.90	6.00
" Extra Heavy ..... "	....	....	6.85	....	....	7.15	7.80

INDEPENDENT COCKS

Size ..... inches	1/8	1/4	3/8	1/2
Price, Standard ..... per dozen	5.50	6.00	6.50	8.00
" Extra Heavy ..... "	....	....	9.10	11.50

PILLAR COCKS

Size ..... inches	1/8	1/4	3/8	1/2
Price, Female, Standard ..... per dozen	3.90	4.25	4.55	5.25
" " Extra Heavy ..... "	....	6.20	6.50	7.15
" Male, Standard ..... "	4.90	5.20	5.55	6.25

TOP SWING COCK

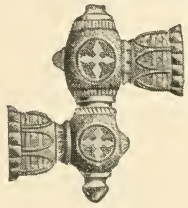


Plate E10715

TWO-LIGHT PENDANT COCK

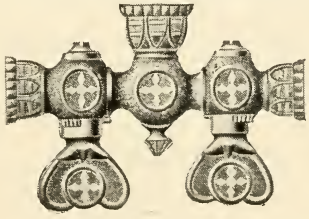


Plate E10716

HOSE COCK

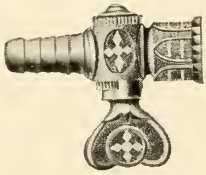


Plate E10717

TOP SWING COCKS

Size ..... inches	3/8x1/8	3/8x1/4	3/8x3/8
Price, Standard ..... per dozen	5.20	5.55	6.20
" Extra Heavy ..... "	8.15	8.45	9.45

TWO-LIGHT PENDANT COCKS

Size ..... inches	1/8x1/8	1/4x1/8	1/4x1/4	3/8x1/8	3/8x1/4	3/8x3/8	1/2x3/8
Price, Standard ..... per dozen	8.45	8.45	9.10	9.10	9.10	10.20	10.60
" Extra Heavy ..... "	....	13.35	....	13.35	13.65	13.65	15.60

HOSE COCKS

Size ..... inches	1/8	1/4	3/8	1/2	3/4
Price, Female, Standard ..... per dozen	4.25	4.55	4.90	5.25	8.00
" " Extra Heavy ..... "	....	....	10.00	12.00	....
" Male, Standard ..... "	4.55	4.90	5.20	5.55	....

GAS FIXTURE FITTINGS

UNIVERSAL SWING

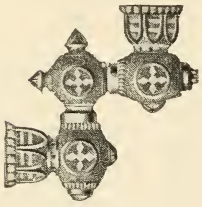


Plate E10721

SIDE NOZZLE

Plate E10722

STRAIGHT NOZZLE

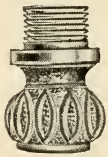


Plate E10723

UNIVERSAL SWINGS

Size.....inches	1/8 x 1/8	1/4 x 1/8	1/4 x 1/4	3/8 x 1/8	3/8 x 1/4	3/8 x 3/8
Price, Standard.....per dozen	7.80	8.15	8.45	8.80	8.80	9.10
" Extra Heavy..... "	....	12.35	12.35	13.00	13.00	14.00

SIDE NOZZLES

Size.....inches	1/8	1/4	3/8	1/2
Price, Standard.....per dozen	1.00	1.65	2.30	3.50
" Extra Heavy..... "	1.95	2.20	2.60	....

STRAIGHT NOZZLES

Size.....inches	1/8	1/4	3/8	1/2
Price, Standard.....per dozen	1.00	1.65	1.95	3.00
" Extra Heavy..... "	1.82	1.95	2.20	....

BRAY BURNER

Plate E10724

BRASS PILLAR

Plate E10725

MONITOR HEATER

Plate E10726

STAND FOR MONITOR HEATER

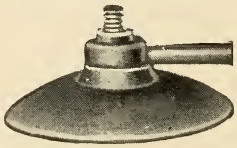


Plate E10727

BRAY BURNERS

Price.....per gross	11.00

BRASS PILLARS FOR LAVA TIPS

Price.....per gross	3.00

MONITOR HEATERS

Number....	1	2	3	4
Price, Heaters.....per dozen	3.00	4.50	6.00	24.00
" Stands..... "	3.00	6.00	8.00	.....

OIL SPECIALS

FOR HANDLING GASOLINE, KEROSENE AND OTHER LIQUID PETROLEUM PRODUCTS

SIMPLE **DURABLE** **EFFICIENT**

On the following pages are shown and described our line of Oil Specials, such as Loading and Unloading Apparatus, Swing Joints, Hand and Power Pumps, Tank Valves, etc.

This entire line has been developed and worked out after exhaustive experiments and working in conjunction with some of the largest wholesale distributors of petroleum products in the country. We have specialized in this line with the idea of suiting, in every possible degree, the needs of oil dealers, whose wants we have been able to satisfy in a manner that is most gratifying.

We have been manufacturing this class of supplies for many years and our efforts to meet the needs of the trade with a line of material **POSITIVELY GUARANTEED FOR SATISFACTORY SERVICE** have been successful to the extent that our product is now standard throughout the United States.

Our extensive and increasing business with refineries who use our Swing Joints for car loading racks, and with distributors of refined oils, is a very gratifying recommendation of the worth of our product.

An inspection of the following pages will surely be of interest to you and the filing of our catalogue for future reference is earnestly suggested.

We will be glad to hear from the trade at any time and to make suggestions for the particular installation of pumps and fittings to best suit requirements.

OVERHEAD UNLOADING APPARATUS

FOR TANK CARS

Plate E10741

The above illustration shows approved method of installation with a **DOUBLE SWING JOINT** on each Suction Line, giving easy access to dome of tank car.

Pipe railing is strong and durable, and forms a rest for the suction arms when not in use, as shown.

No Wrenches are needed, except the **UNION WRENCH COUPLING** which is attached to the suction pipe in tank car. The Union Wrench Coupling and Suction Pipe that goes down into the tank car are not shown in the illustration but are included in the bill of material.

EQUALLY SERVICEABLE FOR LOADING TANK CARS.

OVERHEAD UNLOADING APPARATUS

FOR TANK CARS

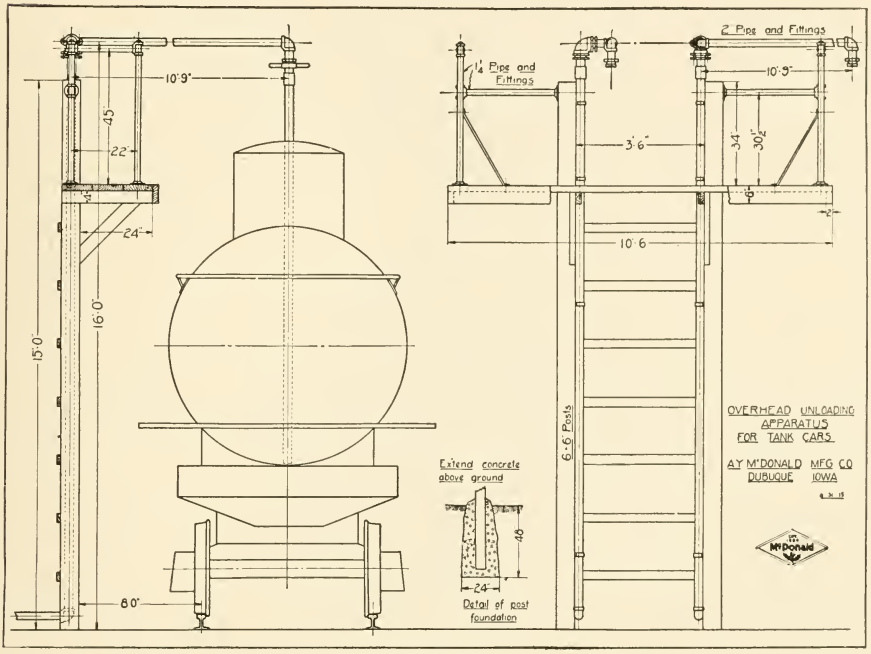


Plate E10751

Above illustration shows front and end views of Approved Overhead Unloading Apparatus, with details and measurements. We do not furnish any of the wooden parts.

Upright Posts should be 8 feet from the nearest rail and the Platform must not extend more than 2 feet from the posts toward the track. Posts should be about 18½ feet long, 15 feet of which is above ground.

Suction Pipes from the base of posts to the Pumping House should be raised an inch or so above the ground, if possible, as it is easier to locate any leak.

Bill of materials for Overhead Unloading Apparatus consists of the following, commencing with the 2-inch Elbow at the base of the upright post.

FIRST SUCTION LINE, composed of three 2-inch Elbows, two 2-inch Couplings, one 2-inch Double Swing Joint, one piece of 2-inch pipe for upright, one piece 2-inch pipe for Swinging Arm, one 2-inch Nipple, one Union Wrench Coupling complete with 2½x2 Bushing and 2-inch pipe to reach through dome to bottom of tank car.

SECOND SUCTION LINE, exactly the same as first Suction Line, with the 2½x2 Bushing to connect to the Union Wrench Coupling, but without the Union Wrench Coupling or 2-inch pipe to extend down into tank car.

PLATFORM RAILING is made of pipe and fittings as shown, the pipe being cut to proper length, so that it makes up easily, with drilled Flanges to fasten it to platform.

Two Suction Lines, Complete as Described	40.00
First Suction Line only, as Described	23.00
Platform Railing only, as Described	9.00

UNDERNEATH UNLOADING APPARATUS

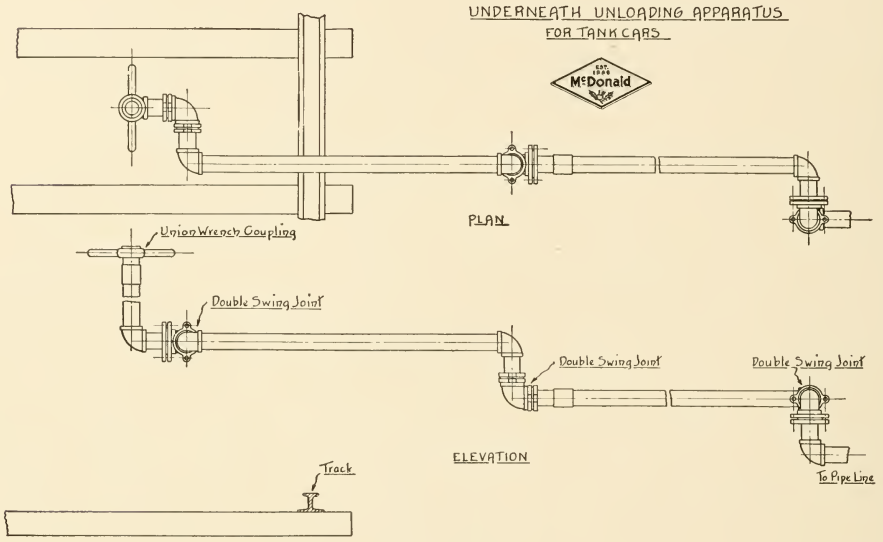


Plate E10761

Above illustration shows plan and elevation of our Underneath Unloading Apparatus for tank cars. It is intended for permanent connection to the suction pipes leading to the pumping house, and constitutes a flexible equipment, which will last indefinitely and will not leak at the joints.

The pipe line which runs from the pump house should terminate 4 feet from the nearest rail with an Elbow, pointing upward, as shown in the elevation, or in case the pipe line parallels the track, then a Tee should be installed with the side opening pointing upward.

The above illustration shows the method of installation with 3 **DOUBLE SWING JOINTS** and 1 **UNION WRENCH COUPLING.** The first Double Swing Joint screws into the Elbow (or Tee) of the pipe line, while the Union Wrench Coupling makes the swivel or union joint between the Reducer Coupling at the bottom of the tank car and the Underneath Unloading Apparatus.

When the pipe line comes within 4 feet of the near rail, then if each piece of pipe in the two arms is 4 feet long, you can reach the Coupling on the tank car at any point from 6½ to 7 feet either side of the center line of the Elbow (or Tee) of the pipe line, thus giving a spread of from 13 to 14 feet so that accurate spotting of the car is not necessary.

On the 2-inch size, the use of an elbow, immediately below the Union Wrench Coupling, makes the Union Wrench Coupling take a horizontal position to connect to the standard 5x2 Swivel Elbow Reducer Coupling, which is used extensively. On the other sizes of Underneath Unloading Apparatus, special couplings will be needed between tank car and Union Wrench Coupling.

Made of Standard Pipe and Fittings.

Size of Pipe.....inches	2	2½	3	4
Price, with 4-foot Arms.....	**32.00**	**45.00**	**65.00**	**120.00**

NOTE:—Brass Reducer Couplings, used to make connection between underneath discharge of tank car and the 2-inch apparatus, is not included in above prices.

UNDERNEATH UNLOADING APPARATUS

McDONALD BRASS REDUCER COUPLINGS FOR UNDERNEATH UNLOADING OF TANK CARS

BRASS SWIVEL

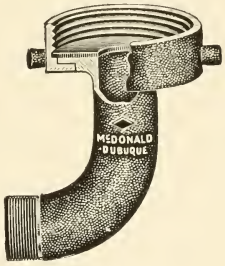


Plate E10771

This **BRASS SWIVEL REDUCER COUPLING** is extra heavy, and fits the 5-inch underneath outlet of tank car, while the other end is threaded for 2-inch pipe. The Swivel is provided with a specially treated leather gasket to make a tight joint between tank car connection and Coupling. **FORGED STEEL SPANNER** is sent with each Coupling.

Price, as described with Spanner.....each **15.00**

STRAIGHT

Plate E10772

Straight Brass Reducer Coupling is extra heavy, and fits the 5-inch underneath outlet of tank car, while the other end is threaded for 2-inch pipe. It has a specially treated leather gasket to make a tight joint between tank car connection and Coupling. **FORGED STEEL SPANNER** is sent with each Coupling.

Price, as described with Spanner.....each **12.00**

Straight Brass Reducer Couplings for larger than 2-inch pipe will be made to order. Price on application.

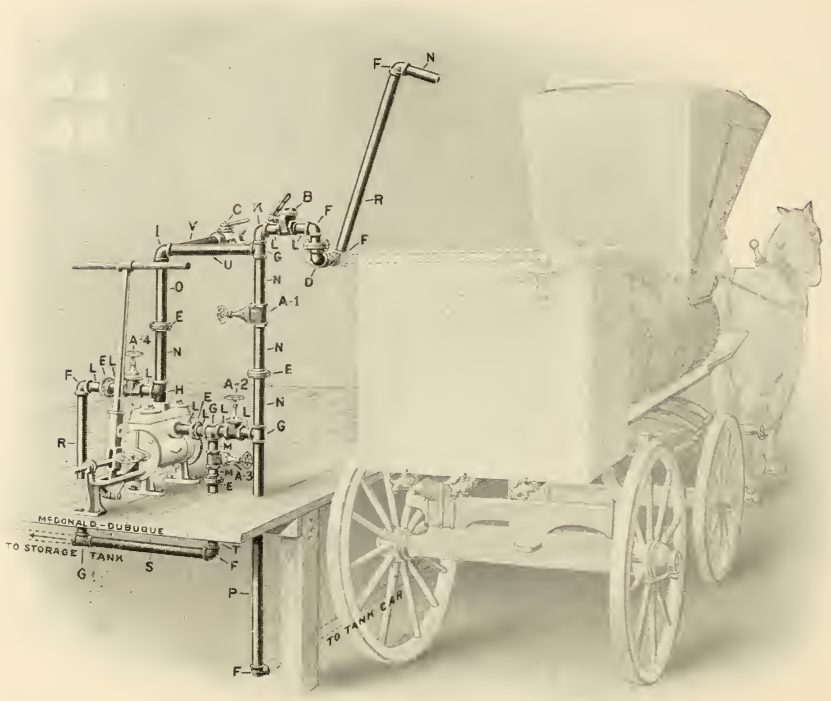
FORGED STEEL SPANNER

Plate E10773

Forged Steel Spanner is sent with each Brass Reducer Coupling for underneath discharge of tank car. It is strong and is used to tighten the Reducer Coupling to the tank car connection.

Price, Spanner only.....each **2.00**

APPROVED PUMP AND CONNECTIONS
FOR STATIONS



By this method of installation it is possible to pump in any direction from any receptacle or reservoir as follows:

FROM TANK CAR TO STORAGE TANK

Open Valves A-2 and A-4, Close Valves A-1, A-3, B and Bibb C.

FROM TANK CAR TO TANK WAGON

Open Valves A-2 and B, Close Valves A-1, A-3, A-4, and Bibb C.

FROM TANK CAR TO BARREL

Open Valve A-2 and Bibb C, Close Valves A-1, A-3, A-4, and B.

FROM STORAGE TANK TO TANK WAGON

Open Valves A-3, and B, Close Valves A1-, A-2, A-4, and Bibb C.

FROM STORAGE TANK TO BARREL

Open Valve A-3 and Bibb C, Close Valves A-1, A-2, A-4, and B.

FROM STORAGE TANK TO TANK CAR

Open Valves A-3 and A-1, Close Valves A-2, A-4, B and Bibb C.

Suction is the side connection to the pump. Discharge is the top connection to the pump.

The pipe for filling the wagon is connected by a 2-inch Double Swing Joint (D), which gives it both vertical and horizontal motion so as to aid in finding openings of wagon and to retire pipe when not in use.

All fittings, valves, etc., are standardized as nearly as possible for convenience when ordering and also for ease of installation.

Each piece is indicated by letter and all pieces of a kind are marked by the same letter.

APPROVED PUMP AND CONNECTIONS

FOR STATIONS

Bill of materials necessary for pump and connections at stations from elbow at base of post running to car to the Tee under the floor running to Storage Tank, as shown in cut on preceding page.

1	Iron Oil Pump, either No. 10 or No. 12, Fig. 57, or No. 12, Fig. 59, as priced below.	
4	2-inch Rising Stem Gate Valves	A-1, A-2, A-3, A-4
1	2 " Quick Opening Throttle Valve	B
1	1½-inch Oil Bibb	C
1	2-inch Double Swing Joint	D
5	2 " Flange Unions	E
†5	2 " Special, Leather, Flange Union Gaskets	
6	2 " C. I. Ells	F
4	2 " C. I. Tees	G
1	2 " Malleable Service Tee	H
1	2 " x 1½-inch Malleable Side Outlet Ell	I
1	2 " Malleable Street Ell	K
9	2 " x 3-inch Nipples	L
2	2 " Close Nipples	M
5	2 " x 10-inch Nipples	N
1	2 " x 14-inch Nipple	O
1	Piece 2-inch Pipe	P
2	Pieces 2 " "	R
1	Piece 2 " "	S
1	" 2 " "	T
1	" 2 " "	U
1	" 1½-inch Pipe	V

CONNECTION AT STORAGE TANK REQUIRES THE FOLLOWING

1 2-inch Gate Valve.

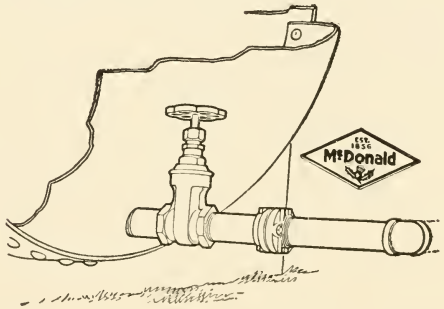
1 2 " Flange Union.

†1 2 " Special, Leather, Flange Union Gasket.

2 2 x 3-inch Nipples.

1 2 x 10-inch Nipple.

1 2-inch C. I. Ell.



As Listed above, with No. 10, Fig. 57, Iron Pump	per set	108.00
" " " " " 12, " 57, " "	"	117.00
" " " " " 12, " 59, " "	"	127.00

SUCTION AND DISCHARGE PIPES

**—ft. 2-inch Pipe to run from Tee in the pumphouse to Ell at storage tank.
**—ft. 2-inch Pipe to run from Ell in the pumphouse to the Ell at the base of upright at R. R. track.

**Suction and Discharge Pipes vary in length according to local conditions, so we do not include them in the bill of materials, but we carry a large stock of pipe and can furnish any amount needed for the installation.

†These Leather Gaskets are treated with our compound to preserve them soft and pliable and immune to the action of oil or gasoline. We guarantee them tight and lasting.

USE LIQUID GUM SHELLAC ON ALL THREADS TO INSURE TIGHT JOINTS

McDONALD SWING JOINTS

SINGLE

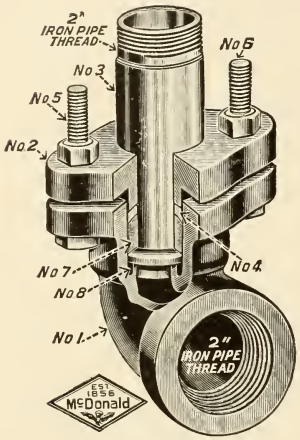


Plate E10801

DOUBLE

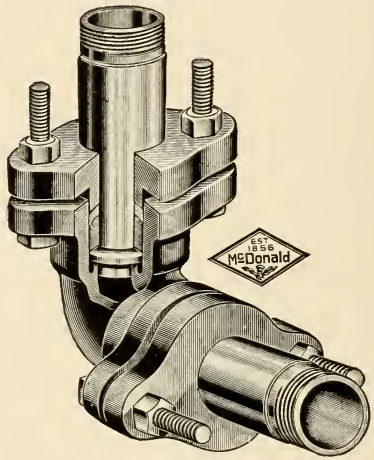


Plate E10802

1—Cast Iron Body. 2—Cast Iron Gland. 3—Brass Ferrule. 4—Brass Packing Ring. 5-6—Iron Bolts. 7—Special Prepared Packing.

McDonald Swing Joints are used to make Flexible Joints, particularly for liquid petroleum products. The illustrations above show the 2-inch size, but they are made in all the sizes listed below.

FITTED WITH McDONALD SPECIAL PREPARED PACKING TO RESIST THE ACTION OF GASOLINE AND KEROSENE, THEY GIVE FREE MOTION AND DO NOT LEAK.

All parts of these Swing Joints are strong and heavy, and the brass ferrule can be screwed into fittings with a regular pipe wrench.

To repack these Swing Joints, remove the nuts, slide back the gland and withdraw the brass packing ring, the ring being drilled to permit the use of wire nails to aid in withdrawing it; then remove the old packing, and replace with McDonald Special Prepared Packing.

AS THE PACKING WEARS THROUGH USE, TIGHTEN UP THE NUTS ON THE BOLTS TO KEEP THE JOINT TIGHT.

Size.....inches	1¼	1½	2	2½	3	4	6
Price, Single Swing Joint.....each	3.75	4.00	4.75	7.00	10.00	20.00	75.00
" Double " " ..... "	6.50	7.00	8.50	11.00	15.00	30.00	130.00

McDONALD BRASS DOUBLE SWING JOINT

All Brass — For 1-inch Pipe

This is a smaller Double Swing Joint than those illustrated above. It is made entirely of brass, and has McDonald Special Prepared Packing to resist the action of gasoline and kerosene, and to insure free motion and tight joints.

Made only in one size, for 1-inch pipe, and is used extensively in connection with filling barrels.

Price, for 1-inch Pipe.....each **5.00**

USE LIQUID GUM SHELLAC ON ALL THREADS TO INSURE TIGHT JOINTS

McDONALD UNION WRENCH COUPLING

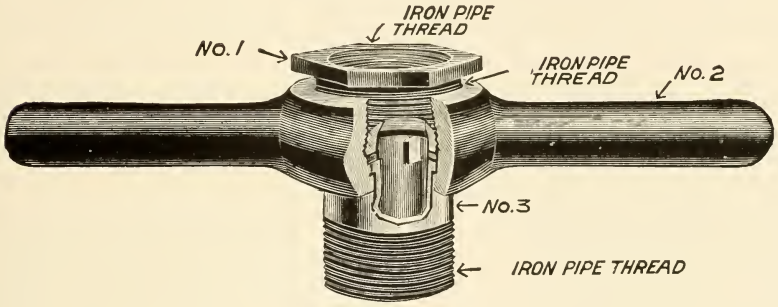


Plate E10811

They are used to attach Tank Car Suction Pipes to the Swinging Arm of Overhead Unloading Apparatus and to connect the Underneath Unloading Apparatus to the Brass Reducer Coupling under Tank Car.

Screw the Iron Bushing, No. 1, tightly on to the Swinging Arm of Overhead Unloading Apparatus, or the Reducer Coupling of Underneath Unloading Apparatus and leave it there permanently.

Connect suction pipe of proper length to Brass Ferrule, No. 3, by means of a pipe Coupling or elbow, and screw it up tightly to keep it permanently united.

Handle, No. 2, is used as a wrench to connect suction pipe to tank car when unloading, the Handle swiveling or turning on the Brass Ferrule, No. 3, drawing the Brass Ferrule and Bushing together, the same as a union. No other wrench is necessary.

Use a Leather Washer between Bushing and Handle to insure a tight joint, easily made.

Upper end of Bushing, No. 1 is threaded for 2, 2½ or 3-inch pipe, according to size.

Lower end of Bushing, No. 1, is threaded for 2½-inch on the 2-inch wrench, 3-inch on the 2½-inch wrench and special No. 8 thread on the 3-inch and 4-inch wrench.

Handle, No. 2, is threaded to fit the Bushing, No. 1, according to size.

Brass Ferrule, No. 3, is threaded for 2, 2½, 3 or 4-inch pipe according to size, to connect to suction pipe.

Heavy Brass Lugs on the inside of Brass Ferrule, No. 3, are used when screwing the suction pipe onto the ferrule, to avoid marring and crushing the outside of brass ferrule with a pipe wrench. A piece of wood is thrust into the ferrule, and answers the place of the usual wrench to hold the brass ferrule, while the suction pipe is being attached.

Size, Suction Pipe.....inches	2	2½	3	4
Price.....each	**3.00**	**6.00**	**10.00**	**14.00**

USE LIQUID GUM SHELLAC ON ALL THREADS TO INSURE TIGHTS JOINTS

HOSE COUPLINGS AND SPANNERS

SPECIAL HOSE COUPLING

RED METAL EXTRA HEAVY

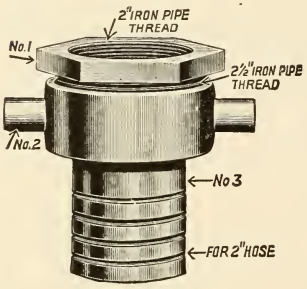


Plate E10821

HOSE SPANNER

MALLEABLE IRON

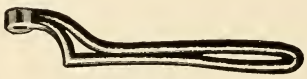


Plate E10822

Above illustration shows 2-inch size. Also made in 2½-inch size.

To attach hose to reducing coupling under the car when unloading from bottom outlet.

Made of the best grade red brass, heavy and substantial.

1—Bushing. 2—Union Nut. 3—Hose Ferrule.

Screw Bushing, No. 1, permanently onto the 5-inch reducer coupling and attach the Union Nut and Hose Ferrule, Nos. 2 and 3, to the suction hose.

Connection between Hose and Car Reducer is then effected by means of the 2½ or 3-inch thread, a large, coarse, heavy thread that will not strip, wear or cross, and will long outlast the finer 2-inch thread usually used.

The 2½ and 3-inch thread being greater pitch, the connection is more quickly made than by 2-inch thread.

Shoulder at base of Bushing, No. 1, has face ⅓-inch against face at top of No. 3 ferrule, hence a non-leaking joint is assured.

Bushing for 2-inch Hose Coupling is 2½x2 inch, and for the 2½-inch Hose Coupling is 3x2½ inch.

Malleable iron hose spanner as shown is used to screw Union Nut, No. 2, upon Bushing, No. 1, until face of ferrule is seated tightly against face of Bushing.

Heavy cast brass Hose Clamp with lip is also supplied to fit the suction hose.

The 2-inch Hose Coupling fits 2-inch hose and the inside thread of Bushing is for 2-inch iron pipe. The 2½-inch Hose Coupling fits 2½-inch hose and the inside thread of Bushing fits 2½-inch iron pipe.

Size.....inches	2	2½
Price, Special Hose Coupling, Spanner and Clamp, Complete.....	**4.00**	**7.00**

The 2-inch Special Hose Coupling can be furnished with ferrule to fit 1½-inch hose if desired, at the same price.

McDONALD DUPLEX OIL TANK VALVE

AUTOMATIC

Patented in U. S., Jan. 3, 1911, and Canada, Sept. 20, 1910

RELIEVES PRESSURE

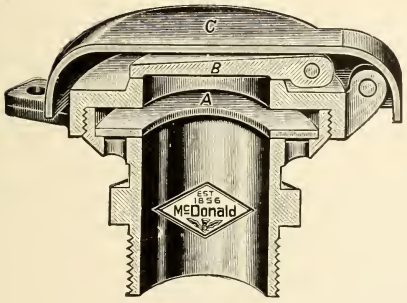


Plate E10831

SUPPLIES VENT

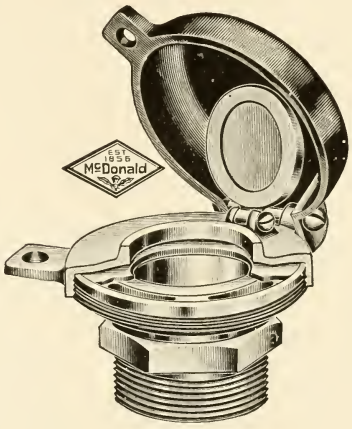


Plate E10832

Supplying air to the tank through slotted openings under the aluminum valve "A" when oil is drawn off.

Permits expulsion of air or gases through hinged valve "B" when pumping oil into the tank.

Prevents internal pressure due to expansion by permitting air and gases to pass out through valve "B."

Valves "A" and "B" on ground seats are air tight, hence losses by evaporation are prevented or at least greatly lessened.

Throw back iron cap "C" and valve "B" giving full area circular opening into tank to insert gauging rod when taking stock of contents of tank.

Iron Cap and Valve automatically drop back into place and seal the tank when gauging rod is withdrawn.

Iron Cap housing entire upper part of body protects valve and hinged parts from snow, ice, etc., so they cannot clog or interfere with the work of the valve.

Iron Cap hinged by lock nut bolt to prevent working loose.

Hinged joint on valve "B" and iron cap "C" are loose fit to prevent binding.

Iron Cap, in falling, strikes the padlock ear on body, preventing strain at the hinge bolt.

A Pipe Nipple and Coupling are used to connect the valve to the tank in northern territory, as it raises the valve about 10 inches above the tank so that snow will not bank around the valve and seal it.

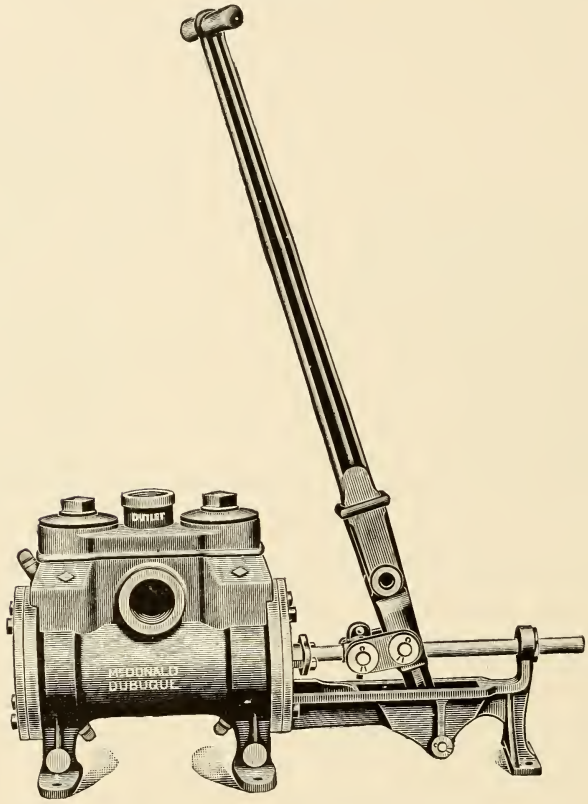
VALVE CAN BE LOCKED, by means of a padlock through holes in padlock ears of body and iron cap, to prevent tampering with the valve and also to prevent syphoning oil out of tank by strangers.

Size.....inches	2	2½	3	6
Price, as shown.....each	7.00	16.00	24.00	90.00
" with Padlock (2 keys)..... "	7.50	16.50	.....	.....
" " Nipple and Coupling..... "	7.50	.....	.....	.....
" " " " Coupling and Padlock (2 keys) .....each	8.00	.....	.....	.....

OIL PUMP

HORIZONTAL DOUBLE ACTING

FIG. 57



No.	Diameter Cylinder Inches	Stroke Inches	Capacity Per Rev. Gallons	Suction Inches	Discharge Inches	Approx. Weight Pounds	Price Iron	Price Brass Lined
8	4	4	.544	2	1½	76	**29.00**	**35.00**
10	5	5	.85	2	2	115	**35.00**	**43.00**
12	6	6	1.47	*2	2	160	**44.00**	**54.00**

THE PUMPS ARE REVERSIBLE (RIGHT OR LEFT) AS THE HANDLE AND OUTRIGGER MAY BE PLACED AT EITHER END, AS THE CYLINDER HEADS WILL INTERCHANGE, THUS THE PUMP MAY BE SET WITH THE SUCTION ON EITHER SIDE AND THE HANDLE AT EITHER END WHILE THE OUTLET BEING ALWAYS CENTERED AT THE TOP, CAN BE RUN IN ANY DIRECTION BY USE OF AN ELBOW.

LAG SCREWS (⅜x3 INCHES), TO FASTEN PUMP TO FLOOR, ARE SENT OUT WITH EACH PUMP.

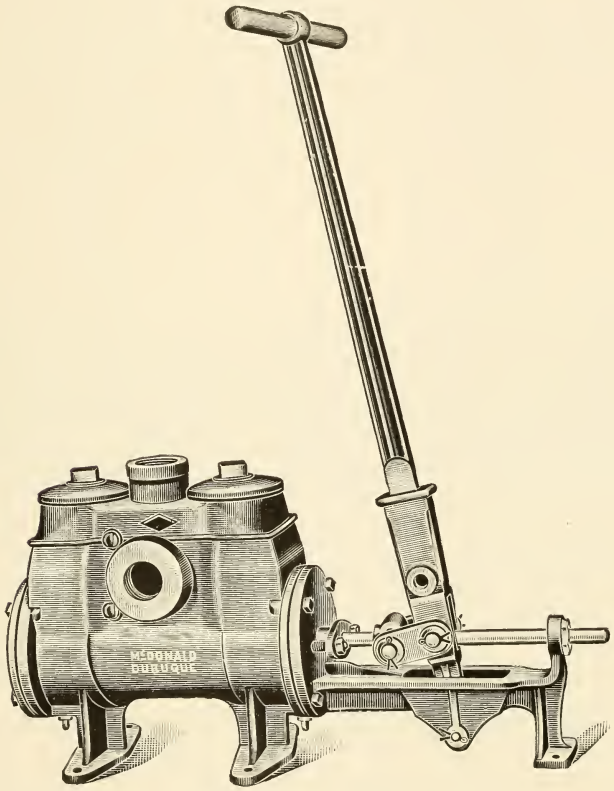
*Furnished with 2½-inch suction if desired, without extra charge.

USE LIQUID GUM SHELLAC ON ALL THREADS TO INSURE TIGHT JOINTS

McDONALD OIL PUMP

HORIZONTAL EXTRA LARGE VALVES AND OPENINGS DOUBLE ACTING

FIG. 59



Above is shown our Oil Pump for operation by hand or power.

CYLINDER AND VALVE CHAMBERS are a one-piece casting with the Valves clustered above the Cylinder, so that when once primed, the cylinder remains full as the oil cannot leak back.

VALVES are Extra Heavy Cast Red Brass, of large size, carefully ground to a perfect fit on Cast Red Brass Valve Seats, and are easily accessible by removing the Valve Caps above them.

PISTON ROD is ⅞-inch diameter, made of **SOLID TOBIN BRONZE,** connected to Cross Head by two strong links.

PLUNGER LEATHERS and the washers under the Valve Caps are **SPECIALLY TREATED FOR GASOLINE AND OIL.**

The pumps are reversible (right or left) as the handle and outrigger may be placed at either end, as the cylinder heads will interchange, thus the pump may be set with the suction on either side and the handle at either end, while the outlet being always centered at the top, can be run in any direction by use of an elbow.

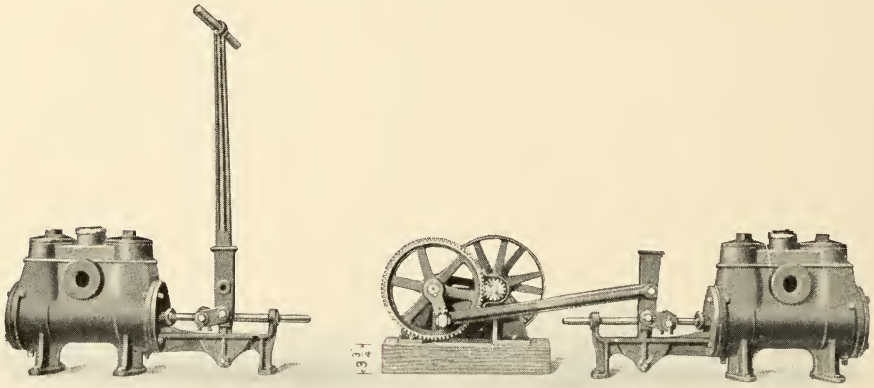
PUMPS are regularly tapped for 2-inch suction and discharge, but suction can be 2½ or 3-inch if desired and for 2½-inch discharge. Capacity of pump at 40 strokes per minute, about 3,500 gallons an hour. Weight, 211 lbs.

	Iron	Brass Lined
Fig. 59 Pump, 6-inch Cylinder, 6-inch Stroke.....	**54.00**	**64.00**

McDONALD OIL PUMPS

FIG. 590

WITH BELTED POWER JACK TO OPERATE TWO PUMPS FOR OIL OR GASOLINE



Above illustration shows two of our Figure 59 Oil Pumps for operation by hand or power, in connection with a Belt-driven Power Jack.

As shown the Connecting Rod of the Jack is attached to the handle socket of the pump to the right. This same Connecting Rod is used to operate the pump to the left. Be careful to locate each pump the same distance from the center of gear to which connecting rod is attached, and be sure that the pumps and connecting rods are in direct line with each other, and the Pumps and Jack are rigidly fastened to platform.

The Power Jack should be raised 3¾ inches above the level of the platform on which the pumps are fastened, so that the center of the gear is on a level with the holes in the handle socket where connecting rod attaches.

CYLINDER AND VALVE CHAMBERS are a one-piece casting with the Valves clustered above the Cylinder, so that when once primed, the cylinder remains full as the oil cannot leak back.

VALVES are Extra Heavy Cast Red Brass, of large size, carefully ground to a perfect fit on Cast Red Brass Valve Seats, and are easily accessible by removing the Valve Caps above them.

PISTON ROD is ⅞ inch diameter, made of **SOLID TOBIN BRONZE.**

PUMP JACK is our Fig. 408 and suitable for heavy duty.

CAST IRON FRAME, on which pulleys and gear are mounted, is extra heavy and strong, **SPLIT BABBITTED BEARING** in which gear shaft operates is 7¾ inches long, babbitted 3 inches at each end, with an oil well in the center. **SPLIT BABBITTED BEARING** in which pulley shaft operates is 10 inches long, babbitted 3 inches at each end, with an oil well in the center.

GEARING is all machine cut from the solid, **TIGHT AND LOOSE PULLEYS** are 3¼-inch face by 14 inches diameter. **CRANK PIN** is 1-inch cold rolled steel. **BACK GEARED** 4⅘ to 1. Pulley speed should not exceed 190 revolutions per minute which will operate Pump 40 strokes a minute.

PUMPS are regularly tapped for 2-inch suction and discharge, but suction can be 2½ or 3 inches, if desired and for 2½-inch discharge. **CAPACITY OF PUMP AT 40 STROKES PER MINUTE, ABOUT 3500 GALLONS AN HOUR.**

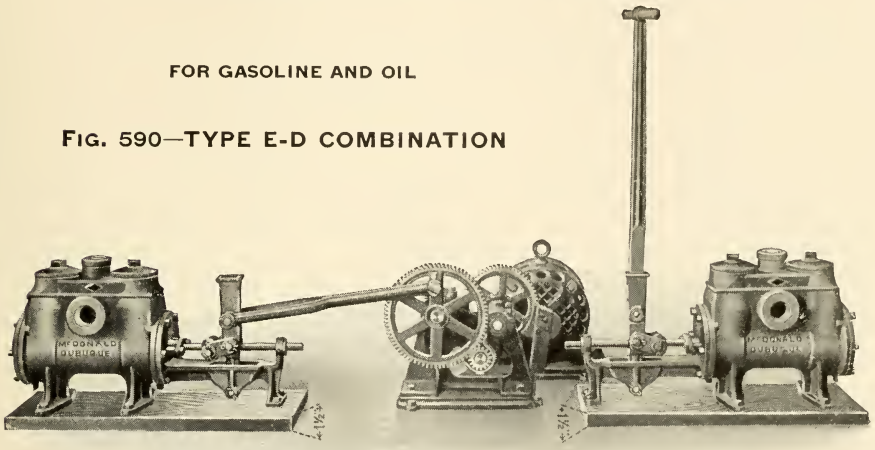
Fig. 590 Combination, composed of two No. 12 Fig. 59 Oil Pumps, with one iron handle and Fig. 408 Pump Jack with Connecting Rod, as shown **146.00**

McDONALD OIL PUMPS

WITH POWER JACK TO OPERATE TWO PUMPS

FOR GASOLINE AND OIL

FIG. 590—TYPE E-D COMBINATION



Above illustration shows two of our Fig. 59 Oil Pumps for operation by hand or power in connection with our Double Back Geared Power Jack connected direct to **TWO HORSE POWER ELECTRIC MOTOR.** Motor and Jack are mounted on cast iron bed plate. Power Jack is so located that it can operate either pump as desired.

The Connecting Rod of the Jack is attached to the handle socket of the pump to the left. This same Connecting Rod is used to operate the pump to the right. Be careful to locate each pump the same distance from the center of gear to which Connecting Rod is attached, and be sure that the pumps and Connecting Rod are in direct line with each other, and that Pumps and Jack are rigidly fastened to platform.

FIG. 59 PUMPS are 6-inch diameter and 6-inch stroke, with extra large openings and valves. **CYLINDER AND VALVE CHAMBERS** are a one-piece casting with the Valves clustered above the Cylinder, so that when once primed, the Cylinder remains full as the oil cannot leak back. **VALVES** are Extra Heavy Cast Red Brass, of large size, carefully ground to a perfect fit on Cast Red Brass Valve Seats, and are easily accessible by removing the Valve Caps above them. **OUTRIGGER**—Another important feature in connection with these pumps is the solid supporting frame or outrigger. The weight of all moving parts and also of the person pumping is carried on the pin which runs through the bottom of the frame at the extreme lower end of the handle socket and the outer end of the Piston Rod is also guided and supported by this frame or outrigger. **PISTON ROD** is ⅞-inch diameter, made of **SOLID TOBIN BRONZE.**

PUMP JACK is our Fig. 402 designed for operating Oil Pumps; particularly for use with Electric Motors. It is **BACK GEARED** 12 to 1, so that 1750 R. P. M. Motors can be used, or slower speed Motors with larger pinion. **GEARING** is all machine cut from the solid. **SPLIT BABBITTED BEARINGS** in which gear shafts operate, have removable caps.

CAPACITY OF PUMP AT 40 STROKES PER MINUTE IS ABOUT 3500 GALLONS AN HOUR.

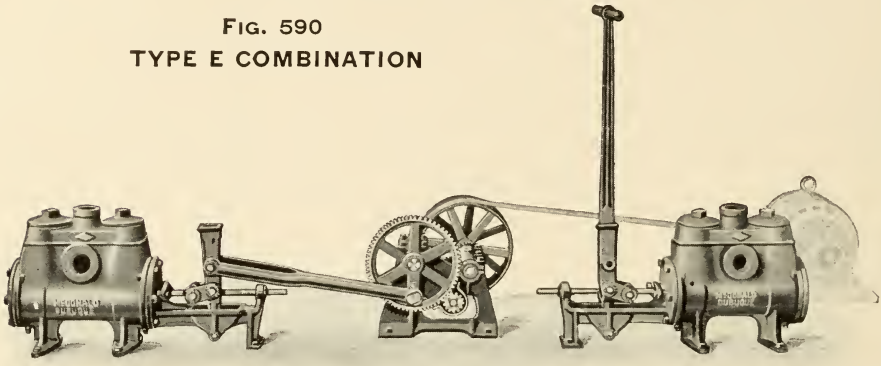
Pumps are regularly tapped for 2-inch suction and discharge, but suction can be 2½ inches or 3 inches, if desired and discharge 2½ inches.

Fig. 590—Type E-D Combination, composed of 2 No. 12 Fig. 59 Iron Oil Pumps, with 1 Handle and Fig. 402 Jack with Connecting Rod and Cast Iron Bed Plate, but without Motor 180.00

McDONALD OIL PUMPS

WITH BELTED POWER JACK TO OPERATE TWO PUMPS FOR GASOLINE AND OIL

FIG. 590
TYPE E COMBINATION



Above illustration shows an arrangement of two of our Fig. 59 Oil Pumps for operation by hand or power, in connection with a Belt Driven Double Back Geared Power Jack particularly designed for Electric Motor Drive. Power Jack is so located that it can operate either pump as desired. **A STRONG,** Simple, Efficient and Durable Outfit.

As shown, the Connecting Rod of the Jack is attached to the handle socket of the pump to the right. This same Connecting Rod is used to operate the pump to the left. Be careful to locate each pump the same distance from the center of gear to which Connecting Rod is attached, and be sure that the pumps and Connecting Rod are in direct line with each other, and that Pumps and Jack are rigidly fastened to platform.

Fig. 59 **PUMPS** are 6-inch diameter and 6-inch stroke, with extra large openings and valves. **CYLINDER AND VALVE CHAMBERS** are a one-piece casting with the Valves clustered above the Cylinder, so that when once primed, the Cylinder remains full as the oil cannot leak back. **VALVES** are Extra Heavy Cast Red Brass, of large size, carefully ground to a perfect fit on Cast Red Brass Valve Seats, and are easily accessible by removing the Valve Caps above them. **BRASS DRAINAGE PLUGS** threaded for ¼″ pipe, with lead gasket, to permit draining the pumps. **PISTON ROD** is ⅞″ diameter, made of **SOLID TOBIN BRONZE,** connected to Cross Head by two strong links.

PUMP JACK is our Fig. 402 designed particularly for use with Electric Motors. It is **BACK GEARED** 12 to 1, so that 1750 R. P. M. Motors with 4-inch driving pulley can be used, or slower speed Motors with larger drive pulley. **TIGHT AND LOOSE PULLEYS** are 3¼″ face by 14-inch diameter. Gearing is all machine cut from the solid **CAST IRON FRAME,** is extra heavy and strong. **SPLIT BABBITTED BEARINGS** in which gear shafts and pulley shaft operate, have removable caps, and are extra long, with oil well in the center. **CRANK PIN** is 1-inch cold rolled steel. **PULLEY SPEED** of Jack should not much exceed 500 R. P. M. which will give 40 strokes per minute. **PULLEY AND GEAR SHAFTS** are cold rolled steel 1½″ diameter.

ELECTRIC MOTOR is shown, belted to the Jack, but prices below do not include motor or Belt. We can furnish any desired type of Motor, and will gladly name prices on application. For ordinary use about Oil Stations, for unloading cars, etc., a 2 Horse Power Motor is sufficient.

CAPACITY OF PUMP AT 40 STROKES PER MINUTE IS ABOUT 3500 GALLONS AN HOUR.

Pumps are regularly tapped for 2″ suction and discharge, but suction can be 2½″ or 3″, if desired, and discharge 2½.″

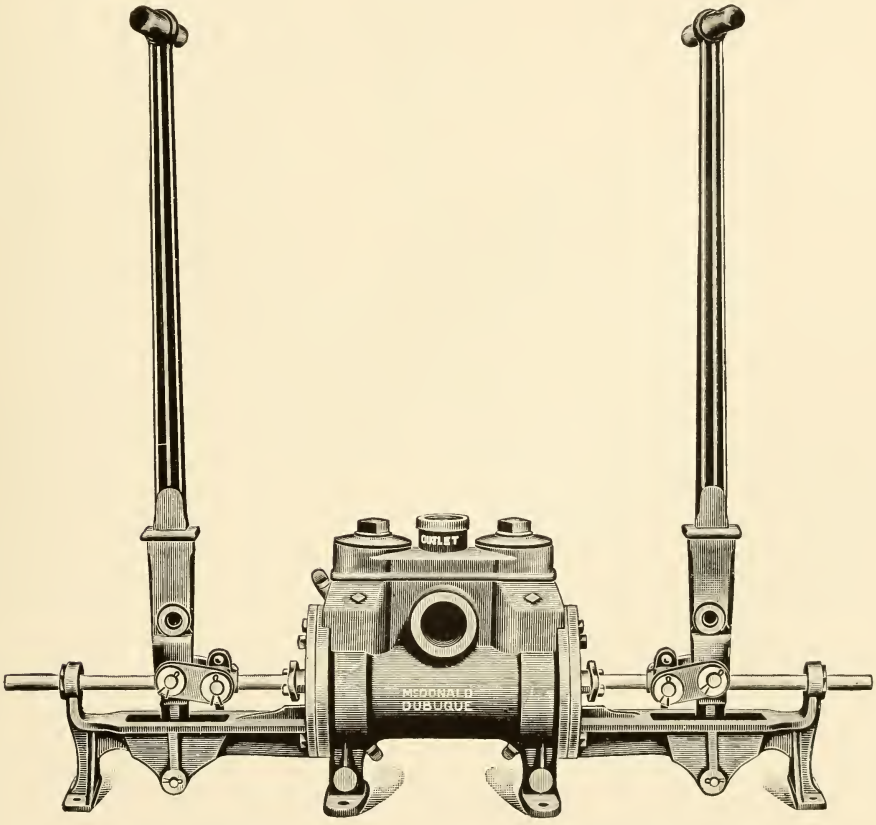
Fig. 590 — Type E Combination, Composed of 2 No. 12 Fig. 59 Oil Pumps, with 1 Handle and Fig. 402 Jack with Connecting Rod, but without Motor or Belt **160.00**

OIL PUMP

HORIZONTAL DOUBLE ACTING

DOUBLE BRAKE

FIG. 58



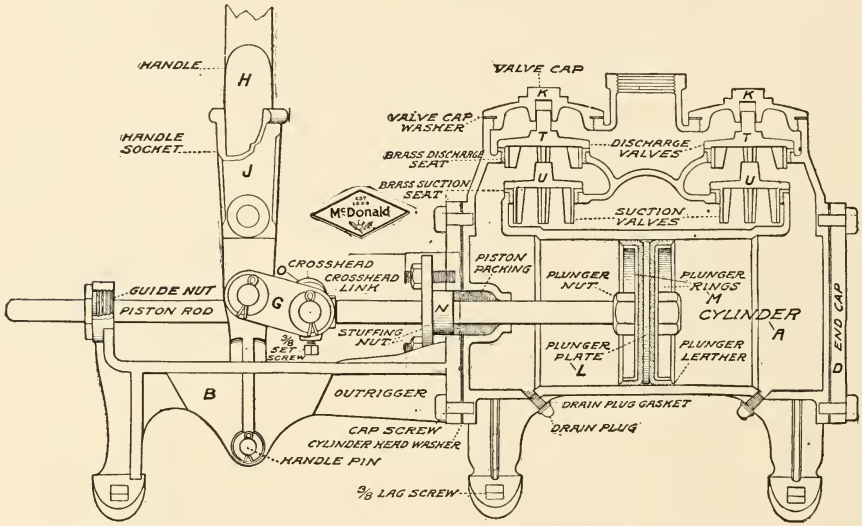
No.	Diameter Cylinder Inches	Stroke	Capacity per Rev. Gallons	Suction Inches	Discharge Inches	Approx. Weight Pounds	Price Iron	Price Brass-lined
8	4	4	.544	2	1½	100	**35.00**	**41.00**
10	5	5	.85	2	2	154	**41.00**	**49.00**
12	6	6	1.47	*2	2	210	**50.00**	**60.00**

LAG SCREWS (⅜X3 INCHES), TO FASTEN PUMP TO FLOOR, ARE SENT OUT WITH EACH PUMP.

*Tapped for 2½-inch suction, without extra charge, if desired.

OIL PUMP

SECTIONAL VIEW SHOWING PARTS BY NAME AND LETTER



In ordering, specify number and figure of pump, if cylinder is iron or brass-lined, and size of suction and discharge tappings.

		FIG. 57			FIG. 59
Figure of Pump		8	10	12	12
Size Number of Pump		4	5	6	6
Diameter of Cylinder, Inches					
	Casting Letter				
Cylinder, Iron	A	13.00	17.00	21.00	26.00
" Brass-Lined	A	16.50	20.00	25.00	30.00
" Cap, Back	D	1.10	1.75	2.25	2.25
" Outrigger	B	4.00	5.00	6.00	6.00
" Cap Gaskets, Treated Leather		.60	.80	1.00	1.00
Plunger Complete with Rod		7.25	8.30	9.40	9.40
" Plate	L	.40	.50	.60	.60
" Ring, each	M	.40	.60	.70	.70
" Leathers, each		.90	1.25	1.75	1.75
" Nut		.20	.20	.20	.20
" Rod, Tobin Bronze		3.25	3.50	3.75	3.75
Valve Cap	K	1.50	1.50	2.00	3.00
" " Washer, Treated Leather		.40	.40	.50	.75
Discharge Valve, Brass	T	1.25	1.25	1.10	2.00
Suction Valve, Brass	U	1.00	1.00	1.25	1.50
Valve Seat, Brass, Discharge		.90	.90	1.00	1.80
" " " Suction		.80	.80	.90	1.00
Handle, Iron, only	H	2.00	2.00	2.00	2.00
" Socket, Iron	J	....	2.50	2.75	2.75
" Wood Cross		.50	.75	.75	.75
Cross Head	O	2.00	2.00	2.00	2.00
" " Links, each	G	.50	.50	.50	.50
Iron Stuffing Box Gland	N	.80	.80	.80	.80

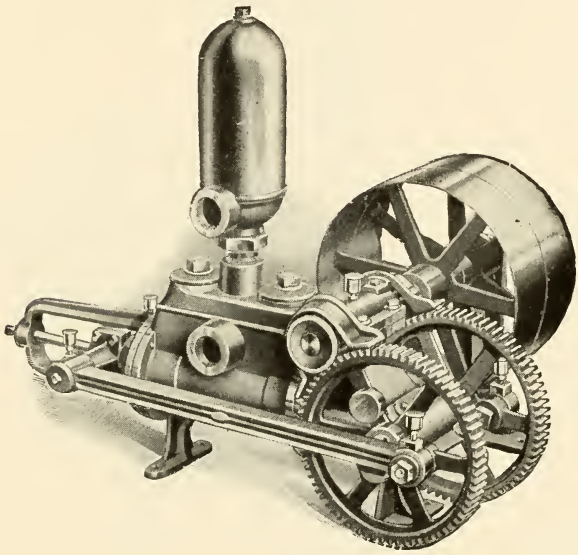
Outrigger Brass Guide Nut .75. Steel Stud and Nut for Gland .40. Brass Drain Plug .30. Drain Plug Lead Gasket .08. Screws, each .10. Pins, each .15. Spring Cotters, each .02.

McDONALD POWER OIL PUMP

DOUBLE-ACTING BABBITTED BEARINGS

MACHINE CUT GEARS BACK GEARED 4 TO 1

FIG. 457



A high class power pump of large capacity for Oil and Gasoline. Strong in every part, compact and durable; suitable for gasoline engine, electric motor or shaft drive.

CYLINDER and valve chambers is a one-piece casting without horizontal joints, and both sets of valves being above the cylinder the oil cannot leak back nor the cylinder lose its priming. **VALVES** are heavy red cast brass on red cast brass seats; each thoroughly ground to insure a perfect fit. **VALVE CAPS,** on either side of air chamber, give access to valves without disturbing the pump or its connections. **TOBIN BRONZE PISTON ROD** is ⅞ inch diameter, and guided at the extreme end by a brass bushing to insure alignment. **PLUNGER** is fitted with double cupped leathers especially treated to resist the action of kerosene, and gasoline. **AIR CHAMBER** is connected to the pump by standard wrought nipple and can be turned to discharge in any direction.

TIGHT AND LOOSE PULLEYS are cast iron, 4½x16x1½-inch bore. **CONNECTING RODS** are heaviiy ribbed cast iron. **DOUBLE WRIST PINS** are-cold rolled steel, 1¼ inches diameter. **PULLEY AND GEAR SHAFT,** 1½ inches diameter cold rolled steel, operate in split babbitted boxes with 7⅛ inch bearing.

We recommend a pulley speed not to exceed 180 revolutions per minute, which will give the pump 45 revolutions per minute.

Dimensions—Length 54 inches. Width 28 inches. Height, including air chamber, 34 inches.

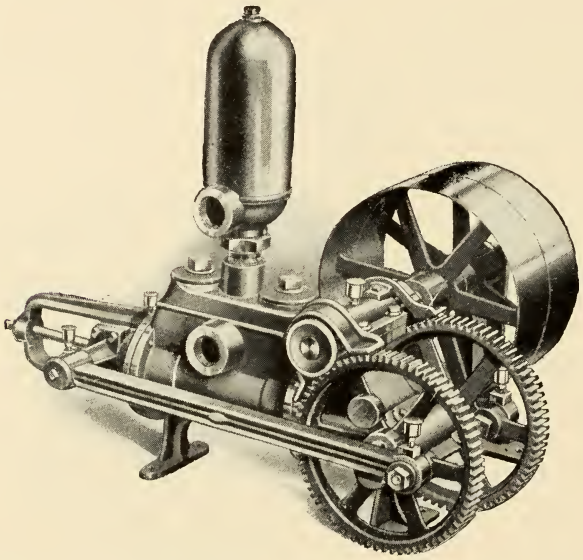
No.	Diam. Cylinder Inches	Stroke Inches	Suction Inches	Discharge Inches	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Wt. Lbs.	PRICE Iron	B. L.
10	5	5	2	2	2280	25	75	170	340	**92.00**	**100.00**

Capacity per hour is based on 45 strokes per minute.

McDONALD POWER OIL PUMP

DOUBLE ACTING — BABBITTED BEARINGS
MACHINE CUT GEARS — BACK GEARED 4 TO 1
CAPACITY, 3,900 GALLONS AN HOUR

FIG. 459



A High Grade Power Pump of Extra Large Capacity for Oil and Gasoline. Compact and Durable with **VALVES** and **WATER WAYS** of **EXTRA SIZE;** suitable for gasoline engine, electric motor or shaft drive.

CYLINDER and valve chambers, are a one-piece casting without horizontal joints, and both sets of valves being above the cylinder the oil cannot leak back nor the cylinder lose its priming. **VALVES** are heavy red cast brass on red cast brass seats; each thoroughly ground to insure a perfect fit. **VALVE CAPS,** on either side of air chamber, give access to valves without disturbing the pump or its connections. **TOBIN BRONZE PISTON ROD** is ⅞ inch diameter, and guided at the extreme end by a brass bushing to insure alignment. **PLUNGER** is fitted with double cupped leathers especially treated to resist the action of kerosene, gasoline, etc. **AIR CHAMBER** is connected to the pump by standard wrought nipple and can be turned to discharge in any direction.

TIGHT AND LOOSE PULLEYS are cast iron, 4½″x16″x1½″ bore. **CONNECTING RODS** are heavily ribbed cast iron. **DOUBLE WRIST PINS** are cold rolled steel, 1¼″ diameter. **PULLEY AND GEAR SHAFT,** 1½″ diameter cold rolled steel, operated in split babbitted boxes with 7⅛″ bearing.

We recommend a pulley speed not to exceed 180 revolutions per minute, which will give the pump 45 revolutions per minute.

Dimensions.—Length, 55 inches. Width, 30 inches. Height, including air chamber, 38 inches.

No.	Diam. Cylinder In.	In.	Suction In.	Discharge In.	Capacity per Hour Gallons	Suct. Lift Feet	Working Pressure Pounds	Elevation Feet	Wt. Lbs.	PRICE Iron	PRICE B. L.
12	6	6	3	2½	3900	25	60	131	405	120.00	130.00

Capacity per hour is based on 45 strokes per minute.

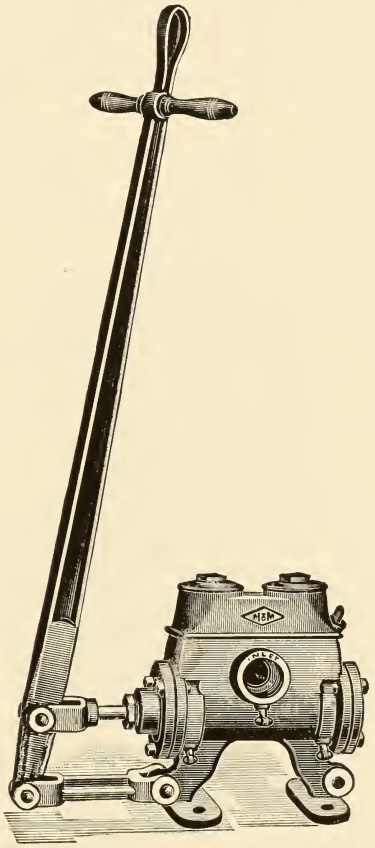
Suction can be fitted for 2½ or 2-inch pipe, while the Discharge for 2-inch pipe.

OIL PUMP

FOR KEROSENE, GASOLINE, ETC.

HORIZONTAL DOUBLE-ACTING FORCE

FIG. 55



This Oil Pump is designed for private garages and consumers. They are simple, efficient and durable, and very easy to operate.

CAST BRASS VALVES are ground to fit on **CAST BRASS VALVE SEATS,** and are clustered above the cylinder so that the pump will always retain its priming.

THE CYLINDER and **VALVE CHEST** are cast in one piece, so the only joints are at the valve caps and cylinder head which are easily tightened so they will not leak.

BRASS COVERED PISTON ROD and **BRASS STUFFING BOX.**

PLUNGER LEATHERS ARE SPECIALLY TREATED to resist the action of gasoline and kerosene, and will wear as long as leathers in pumps used for water.

No.	Diameter Cylinder Inches	Stroke Inches	Capacity per Rev. Gals.	Suction Inches	Discharge Inches	Approx. Weight Pounds	PRICE Iron	PRICE Brass-lined
2	2½	4	.170	1¼	1	46	15.00	18.00
4	3	4	.242	1¼	1	46	17.00	21.00
6	3½	4	.332	1½	1¼	70	20.00	25.00

The handle may be placed at either end, as the cylinder heads will interchange, thus the pump is reversible, right or left.

McDONALD BARREL PUMP

ALL BRASS PLUNGER TYPE

FOR GASOLINE AND OIL

Plate E10941

A very convenient method of getting the contents from the barrel without any danger from leaky faucets.

Pump is made entirely of Brass, except the Iron Handle. **SHELL** is heavy Seamless Brass Tubing. **BOTTOM CAP** has a 2-inch outside thread to fit the large opening in the head of the barrel, but it can also be furnished to screw into 1½-inch opening, when so ordered. **SUCTION PIPE** screwed into the bottom cap is ¾-inch Galv. Pipe, and is 2 feet 4 inches long with a ¾-inch Galv. Coupling at the lower end.

VENT is provided for by several small holes drilled through the flange of bottom cap, avoiding the necessity of loosening the small plug in the head of barrel.

PLUNGER is all Brass with Brass Piston Rod, and a high grade cupped leather. Check Valve is a Brass Puppet carefully ground to a perfect fit on the Brass Valve Seat. Stuffing Box is filled with our Special Piston Rod Packing for use with Gasoline and Oil.

SPOUT is 6 inches long, the discharge end being 10 inches above the head of barrel, plenty high for a Gallon Measure. Syphon Non-drip Spout as shown can be furnished at same price.

Diameter 1⅝ inches. Stroke 6 inches. Length without Suction Pipe, 16 inches.

In ordering state whether Pump is to screw into a 2-inch or 1½-inch opening.

Price, including Galv. Suction Pipe . . . . . each **6.00**

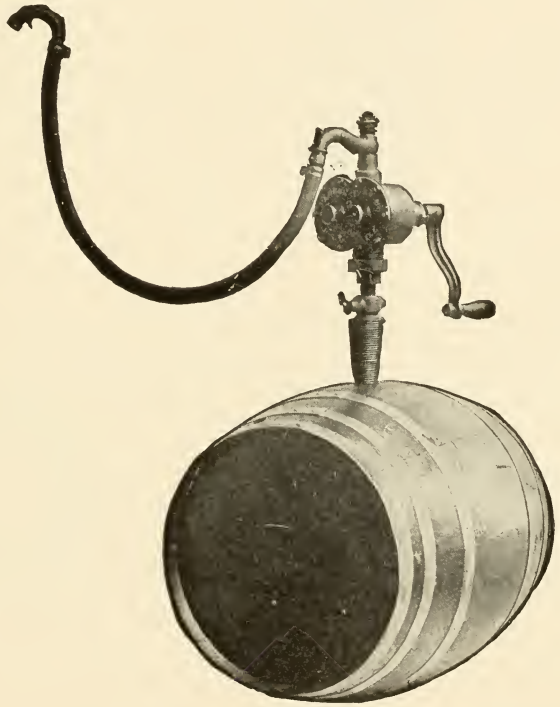
This pump can be furnished with a sealing device, so that pump cannot be removed from the barrel without breaking the seal, at a small additional charge.

ROTARY BARREL PUMP

OIL OR GASOLINE

COMPACT DURABLE INEXPENSIVE

FIG. 115



A practical, efficient and reliable hand rotary pump for pumping Gasoline or Oils of any description from a barrel or hogshead and forcing it into a tank or reservoir.

Arranged as illustrated with device for holding the suction pipe of the pump rigid in the bung of either wood or steel barrels, and with threaded taper shank to fit any size bung from 1½ to 4 inches in diameter.

Suction pipe 3 feet long is furnished with each pump and this suction pipe is adjustable to suit barrels of varying diameters or depths. Equipped with brass valves for oil use.

The **BRONZE CASE AND CAMS** pump should be used for oils and gasoline as the iron pump, unless used more or less continuously, is apt to corrode and bind the cams; though the iron pump is just as durable and in fact many of them are in daily use for oil and giving satisfaction with an occasional cleansing.

Shipped complete with suction pipe, hose coupling, hook and patent holder, but without hose unless ordered at additional cost.

No.	Suction Inches	Discharge for Hose Inches	Gals. per Min. per 100 Rev.	Weight Pounds	Price Iron	Price Bronze Case and Cams
1	1	1	13	45	**14.00**	**36.00**
2	1	1	14	53	**17.00**	**46.00**
3	1¼	1¼	17	66	**20.00**	**56.00**

USE LIQUID GUM SHELLAC ON ALL THREADS TO INSURE TIGHT JOINTS

CHECK VALVES, GASKETS, ETC.

McDONALD VERTICAL CHECK VALVE

FOR GASOLINE AND OIL

Plate E10961

This sectional cut shows our Vertical Check Valve, which has been made to meet a demand for a metal check valve that will not leak when used with Gasoline and Oil. Iron Caps and Brass Shell with Brass Puppet ground to a perfect fit on Brass Valve Seat, make this a very satisfactory Foot Valve or Vertical Check Valve.

Size.....inches	1	1¼	1½	2
Price.....each	**2.25**	**2.75**	**3.25**	**4.50**

McDONALD FLANGE UNION GASKETS

MADE OF TREATED LEATHER

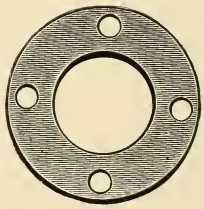


Plate E10962

These **SPECIAL LEATHER** Flange Union Gaskets are an item of importance to the Oil Trade, as they easily make and maintain tight joints. They remain soft and pliable in service and do not need replacing each time the flange unions are disconnected for repairs or changes. They are high grade leather, cut from the choice part of the hide, and **TREATED TO RESIST THE ACTION OF GASOLINE AND OIL.**

GUARANTEED DURABLE, NON-LEAKING and **EFFICENT** in every particular.

Size of Flange Union.....inches	1½	2	2½	3
Outside Diameter of Gasket..... "	4⅝	5¼	6	6¾
Price.....each	**.22**	**.25**	**.34**	**.60**

DIAMOND PETROLEUM PISTON PACKING

FOR PUMPS, SWING JOINTS AND GATE VALVES

Plate E10963

Realizing the need of a packing for Piston Rods of Oil Pumps, for Oil Swing Joints, Oil Gate Valves, etc., we have after a long series of experiments and tests produced our Diamond Petroleum Piston Packing. This Packing is specially made for use with gasoline and other liquid petroleum products and will be found entirely satisfactory.

We are using this Packing in Oil Pumps, Oil Swing Joints, and Oil Gate Valves, and the very satisfactory reports from our customers and orders for the packing, induced us to put it on the market in convenient form.

Made in two sizes, ¼ inch and ⅜ inch, and put up in tin cans containing one pound. The ¼ inch size is a four strand packing, two or three strands of which can be used when smaller size is desired.

Price, One-pound Can.....each **2.00**

Specify size of Packing, in ordering.

McDONALD TANK WAGON VALVES

RED BRASS ¾-INCH PIPE THREAD

SIMPLEX

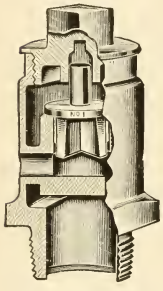


Plate E10971

DUPLEX

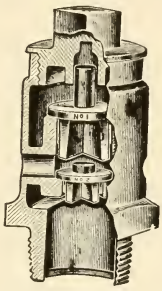


Plate E10972

TRIPLEX

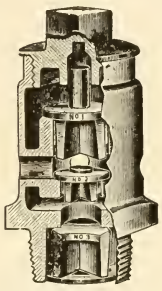


Plate E10973

RED BRASS is used in the manufacture of these valves.

SIMPLEX

When the tank wagon cock is opened to withdraw oil, the air, entering the two hollow spokes, raises the poppet No. 1, and descends into the tank through the space between the inner chamber and the outer casing.

Atmospheric pressure exerted on poppet valve is 15 pounds per square inch, while but two ounces pressure is necessary to raise the valve.

DUPLEX

The poppet valve No. 1 admits air to the tank as above set forth.

The lower poppet valve No. 2 relieves internal pressure due to expansion, as a pressure of one ounce is sufficient to unseat it and permit the gases to pass out through the hollow spokes.

This internal pressure is exerted on top of valve No. 1 and keeps it closed, but it is under valve No. 2 and so raises it and gives relief.

Positively automatic and certain in action, relieving tank wagon of all internal strains due to expansion or all external pressures tending to collapse the tank when oil is withdrawn.

TRIPLEX

The action of poppet valves Nos. 1 and 2 is described above. Valve No. 3 is aluminum to make it as light and buoyant as possible.

Air passing into the tank, or gases passing out, slip past the lower valve No. 3, which is loose and held suspended by means of a brass ring or collar on which it rests.

If the wagon tips over the aluminum valve No. 3 floats up with the rush of the oil, closing the opening and preventing waste of the contents of the wagon and dangers incident thereto.

Price, Simplex.....each .80
" Duplex..... " 1.00
" Triplex..... " 1.30

Permits tank wagon cocks to flow full capacity.

Insure your tank wagons for all time by equipping them with one of these valves.

TANK WAGON CAPS

Plate E10974

Threaded with 4-inch iron pipe male thread, and tapped in center of top for ¾-inch pipe to fit our tank wagon valves. Sent complete with washer.

Price.....each 1.50

SELF-LOCKING DIAMOND TANK WAGON FAUCET

NO PADLOCK

RED METAL **STEEL KEY-LEVER**

NON-LEAKING **GUARANTEED**

Patent Applied for

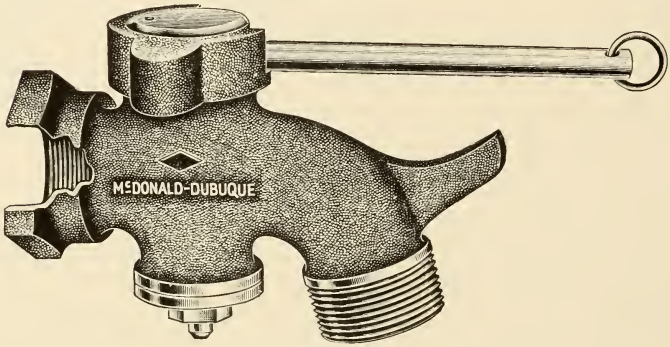


Plate E10981

Our Self-locking Diamond Tank Wagon Faucet meets a requirement of the oil trade, as the mere closing or shutting off of the Faucet likewise automatically locks it. It can only be opened by means of the special key, which is also the lever for opening and closing the Faucet.

To unlock or open the Faucet, the key-lever must be inserted in the opening through the side of the plug, the slot in the end of the key being positioned upright. Press the key firmly back in the opening as far as it will go, or until it strikes the shoulder on the end of the key; then turn the plug by means of the key-lever. In closing the Faucet, insert the key-lever sufficiently far into the opening to get a good grip; turn back until key-lever strikes the lug on body, spring tumbler will automatically lock the plug when this point is reached.

NO PADLOCK or small keys to cause bother by being lost or misplaced.

OPENINGS are large and free so that the Faucet will flow a full stream. Divider on outlet end of Bibb insures solid stream, practically free from spray or splash.

THOROUGHLY GROUND to insure a tight fit and well **LUBRICATED** with a special compound to permit easy turning of the plug. **HEAVY BALE HOOK** at outlet end on which to hang bucket.

THREADED 1½-inch Iron Pipe inside threads on tank end and 1½-inch Iron Pipe outside thread on outlet or Bibb end, so that Iron Pipe or Hose Coupling can be connected to the Faucet.

The Faucet is very heavy, made of the best red metal and thoroughly finished by skilled mechanics.

SELF-LOCKING DIAMOND TANK-WAGON FAUCETS ARE POSITIVELY GUARANTEED TO BE TIGHT WITHOUT LEAKAGE OR DRIP.

Made in one size only as listed below:

Size	inches	1½
Price	each	7.00

DIAMOND TANK WAGON FAUCET

NON-LEAKING

RED METAL MALLEABLE HANDLE

GUARANTEED

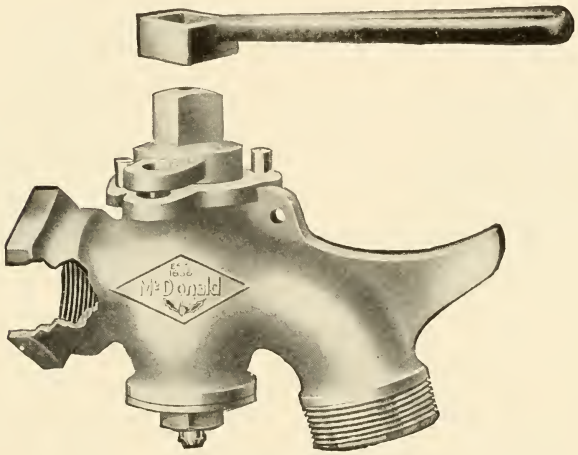


Plate E10991

The Diamond Tank Wagon Faucet is made throughout of the best grade of heavy brass known to the trade as Red Metal, while it is fitted with a loose Malleable Handle, as shown.

Extra large stop pins are provided to limit the movement of the plug, which when closed off registers the two lugs for padlocking, so that the faucet may be locked in a closed position when not in use.

A small hole is drilled in the front of the faucet to fasten the chain carrying the padlock, and a large, heavy bale hook on the end of the spout permits a bucket to be hung from the faucet for filling.

Openings are large and free, so that the faucet will flow a full stream when open.

The faucet is thoroughly ground to insure a tight fit. It is well lubricated with a special compound which is not affected by petroleum products, and will last indefinitely without leakage.

Standard iron pipe threads are provided, so that the faucet may be used with ordinary iron pipe fittings. The outlet or bibb end is threaded, as shown, so that pipe or hose may be connected to conduct the liquid from the faucet.

THESE FAUCETS ARE POSITIVELY GUARANTEED TO BE TIGHT, NO DRIP OR LEAKAGE. They are extremely heavy, well made throughout and finished by mechanics skilled in the art.

Made in two sizes only, as listed below.

Size.....inches	1	1½
Price.....each	**4.00**	**6.00**

McDONALD OIL BIBBS

FOR STEEL OIL BARRELS AND DRUMS

McDonald Oil Bibbs are made from a good grade of **BRASS**, carefully machined and perfectly ground. They are made for use with gasoline or other liquid petroleum products; fitted to withstand the action of such oils without leakage. All are **GUARANTEED** unreservedly.

PLAIN BIBB, IRON PIPE

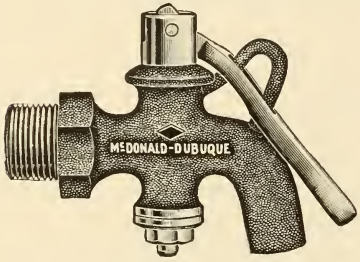


Plate E11001

HOSE BIBB, IRON PIPE

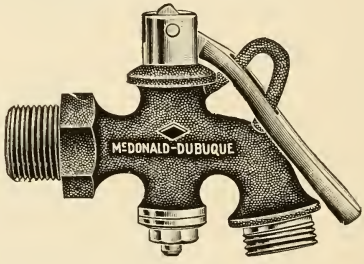


Plate E11002

Size ..... inches	½	⅝	¾	1	1¼	1½
Price Rough Plain Bibb .... each	1.75	2.45	3.00	4.40	7.45	12.45
" " Hose " ..... "	2.00	2.70	3.25	5.00	8.35	13.70

PLAIN BIBB, SOLDER SHANK

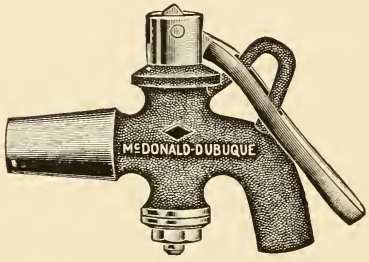


Plate E11003

HOSE BIBB, SOLDER SHANK

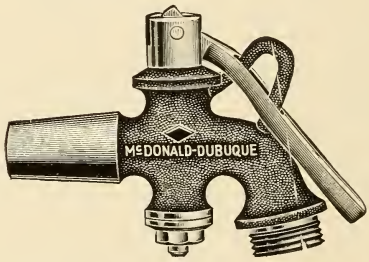


Plate E11004

Size ..... inches	½	⅝	¾	1
Price Rough Plain Bibb ..... each	1.75	2.45	3.00	4.40
" " Hose " ..... "	2.00	2.70	3.25	5.00

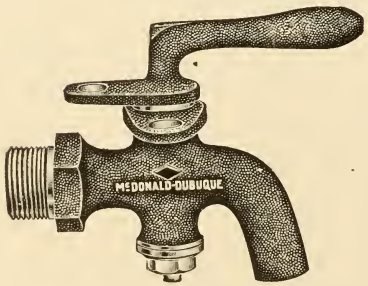


Plate E11005

SOLID BRASS HANDLE LOCK WING OIL BIBBS

Brass Wings or Ears are cast on the handle and on the body of the bibb, and when closed a padlock can be inserted in the ears to lock the bibb. **VERY STRONG** and Simple.

Size ..... inches	½	⅝
Price Rough Plain Bibb ..... each	1.75	2.45
Add for Hose End ..... "	.25	.25

McDONALD OIL BIBBS

FOR STEEL OIL BARRELS AND DRUMS

McDonald Oil Bibbs are a good grade of **BRASS,** carefully machined and perfectly ground. They are made for use with gasoline or other liquid petroleum products; fitted to withstand the action of such oils without leakage. All are guaranteed unreservedly.

SOLID BRASS HANDLE

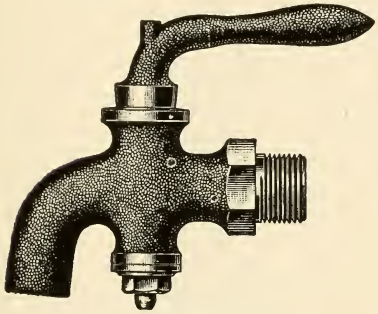


Plate E11011

LOOSE MALLEABLE HANDLE

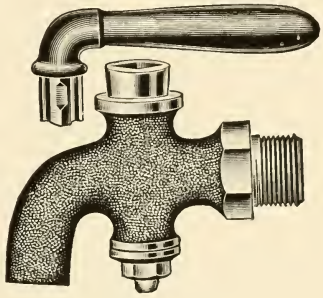


Plate E11012

SOLID BRASS HANDLE

Size.....inches	½	⅝	¾	1	1¼	1½	2
Price Rough Plain Bibb.....each	1.75	2.45	3.00	4.40	7.45	12.45	21.50
Add to List for Hose Bibb End.... "	.25	.25	.25	.60	.90	1.25	1.85

LOOSE MALLEABLE HANDLE

These Bibbs have a square socket in the plug, into which a Malleable Handle fits. This Malleable Handle can be removed so that the Bibb cannot be opened by carelessness or accident.

Size.....inches	½	⅝	¾	1
Price Rough Plain Bibb.....each	1.75	2.45	3.00	4.40
Add to List for Hose Bibb End..... "	.25	.25	.25	.60

McDONALD COMPRESSION OIL BIBB

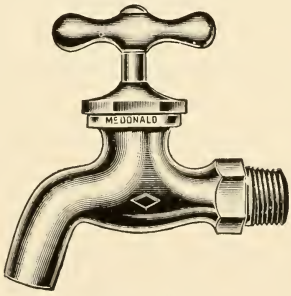


Plate E11013

These Bibbs are specially made and fitted for use with gasoline and oil without leakage. They are easily repaired when necessary. Made of Red Brass, with Special Disc countersunk in the stem, and with Special Packing in the cap to prevent leakage around the stem.

Size.....inches	½	⅝	¾	1
Price Rough Plain Bibb.....each	1.45	1.90	2.55	4.50
" Finished " " ..... "	1.65	2.10	2.75	5.00
Add to List for Hose Bibb End..... "	.25	.25	.25	.60

McDONALD LOCK GATE VALVE

FOR OIL AND GAS

RISING STEM **STEAM METAL**

Patent Applied For

UNLOCKED

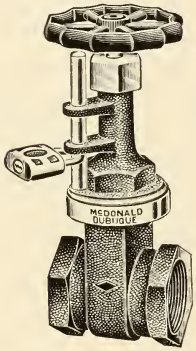


Plate E11021

LOCKED

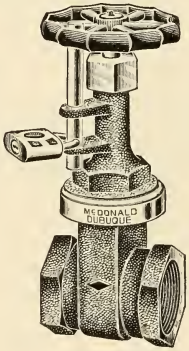


Plate E11022

This Lock Gate Valve can be easily and securely locked. For Gasoline, Kerosene, or other liquid petroleum products.

LOCKING DEVICE: A Strong Steel Pin (½-inch Diameter, with a $\frac{9}{32}$-inch hole drilled for padlock) slides up and down through holes drilled in the two ears cast on the bonnet or center piece of valve. The upper end of this Steel Pin projects between the spokes of wheel when locked, the padlock being between the brass ears, preventing the pin from dropping down. The lower end of steel pin rests on the body of the valve when unlocked, and the hole in pin, then being below the lower ear, permits the padlock to be inserted, locking the pin so that neither can be misplaced or lost. Wheel is riveted to end of valve stem to prevent its removal without evidence of that fact.

TO LOCK THE VALVE, close the valve tightly, and slip the steel pin up so that it projects through the spokes of the wheel, the hole drilled for padlock being between the two brass ears on the valve. Should a spoke of the wheel prevent the steel pin from entering between the spokes, reverse the wheel just enough to permit the pin to enter between the spokes. **THIS IS ENTIRELY PRACTICAL, AS THAT AMOUNT OF REVERSE MOTION DOES NOT START TO RAISE THE DISCS OF THE GATE VALVE.**

STUFFING BOX has extra deep socket for packing, with an extra heavy Stuffing Nut, and a Brass Packing Ring, which forces the packing down into the socket. Packing is our **DIAMOND PETROLEUM PISTON PACKING,** specially made for use on liquid petroleum products.

These Lock Gate Valves are of the Double Gate Rising Stem Pattern, with parallel seats. They have full 2-inch openings, and are very heavy, **ABSOLUTELY TIGHT AND WILL NOT LEAK.**

Price, 2-inch Pipe, without Padlock.....each **8.80**
Extra for padlock with 2 keys, .50.

BRASS OIL VALVES

DOUBLE GATE
RISING STEM

Plate E11031

QUICK OPENING
THROTTLE

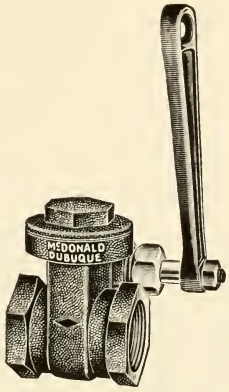


Plate E11032

DOUBLE GATE, RISING STEM

FOR OIL AND GASOLINE

These are High Grade, Double Gate, Brass Valves with Rising Stem, full weight and made of the best of Steam Brass. They are constructed with parallel seats, and the bearing of the wedge being central, it acts uniformly on all parts of the discs, and as a result the discs are forced to their seats and have an equal bearing at all parts.

They are absolutely tight and will not leak. They have our **SPECIAL PREPARED PACKING** in the stuffing box to prevent leakage around the stem.

RISING STEM GATE VALVES are much more desirable than Valves with Non-Rising Stems, as a glance at a valve shows whether it is open or closed.

Size.....inches	½	¾	1	1¼	1½	2	2½	3
Price.....each	**1.65**	**2.05**	**2.80**	**3.70**	**5.00**	**7.30**	**13.00**	**19.00**

QUICK OPENING THROTTLE VALVES

DOUBLE WEDGE GATE, FOR OIL AND GASOLINE

These are High Grade, Double Wedge Gate, Brass Valves, Quick Opening. They are full weight and made of best grade of Steam Metal. The Double Wedge Gates are so guided by the body that they will not bind or stick.

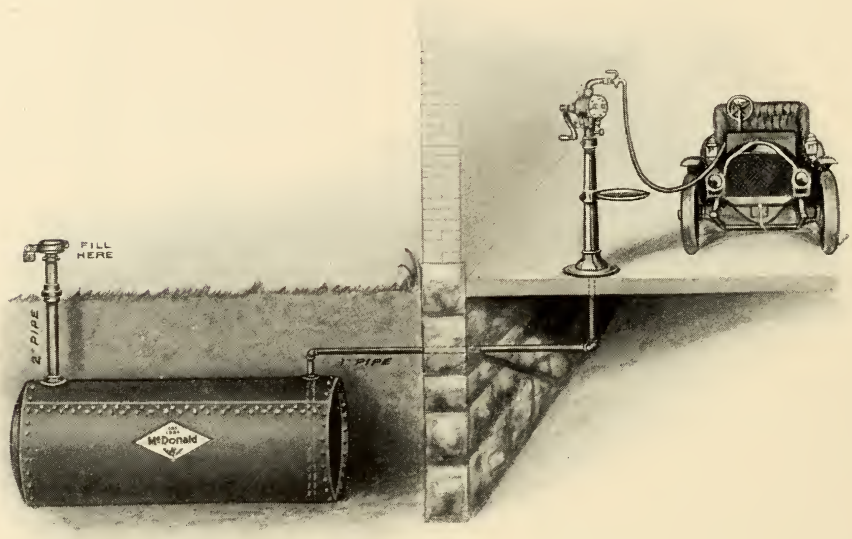
They are absolutely tight and will not leak. They have our **SPECIAL PREPARED PACKING** in the stuffing box to prevent leakage around the stem.

Quick Opening Gate of Throttle Valves are particularly convenient on Barrel Filling or Tank Wagon Filling pipe lines.

Size.....inches	¾	1	1¼	1½	2	2½	3
Price.....each	**3.60**	**4.80**	**6.20**	**8.50**	**11.80**	**20.25**	**30.00**

McDONALD GARAGE OIL SYSTEM

FIG. 100



ROTARY PUMP is mounted on pedestal, and connected to storage tank by means of suction pipe running underground from garage. Equipped with valve trip, by means of which surplus oil in hose can be returned to tank by reversing motion of crank; or, if desired, oil in the auto can be returned to storage. Provided with locking device for crank. Spout can be adjusted to any position. Fitted for 1-inch suction and ¾-inch discharge. Capacity 5½ gallons at fifty revolutions per minute. Horizontal length of tank from pump is practically unlimited. Extreme suction lift 10 feet. Pan for measures bolted to pedestal.

TANK is black steel, double riveted, painted on exterior with rust-resisting paint; 3/16-inch shell, 5/16-inch head; tested to 125 lbs. air pressure, suitable for 60 lbs. working pressure and guaranteed nonleaking. **GALVANIZED TANK** can be furnished if desired, at an additional cost.

FILLER PIPE (2-inch) is fitted with automatic vent and brass strainer. Its length will permit placing top of tank 3 feet below surface of ground. The vent is about 10 inches above ground, so that snow or ice will not bank up and clog it.

SUCTION PIPE (1-inch) extends to the bottom of the tank, terminating above the tank in a short nipple; the balance of the suction pipe not being included in price.

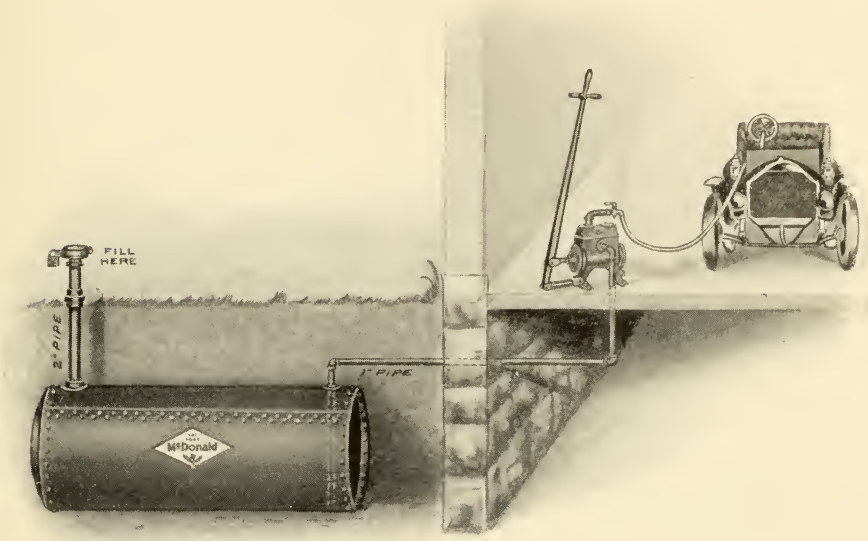
BLACK STEEL DOUBLE RIVETED TANK, PEDESTAL ROTARY GASOLINE PUMP, McDONALD AUTOMATIC OIL TANK VALVE, SPECIAL FILLER PIPE WITH STRAINER, AND SPECIAL SUCTION PIPE.

Price, with 24-inch by 4-foot Tank, 100 Gallons Capacity **66.00**

With larger tanks, prices on application.

McDONALD GARAGE OIL SYSTEM

FIG. 200



This combination of storage tank and horizontal double-acting force pump is the most efficient, lasting and economical, the plunger type of pump being positive in action and reliable at all times.

TANK is black steel, double-riveted, and painted on the exterior to resist the action of rust. 3/16-inch shell by 5/16-inch head. Tested to 125 lbs. air pressure, suitable for 60 lbs. working pressure, and guaranteed non-leaking. **GALVANIZED TANK** can be furnished, if desired, at an additional cost.

FORCE PUMP has 2½-inch brass-lined cylinder by 4-inch stroke, 1¼-inch suction and 1-inch discharge. Valves are cast brass, ground to fit on brass seats, and being above the cylinder the pump is always primed ready for use. Valve caps can be unscrewed to give access to the valves below, without disturbing cylinder heads. Capacity at 30 strokes per minute is five gallons.

SUCTION PIPE (1-inch) extends to the bottom of the tank, and terminates above the tank in a short nipple; the balance of the suction pipe not being included in the price.

FILLER PIPE (2-inch) is fitted with our Automatic Pressure and Vacuum Relief Valve and brass strainer. The length of this pipe will permit placing the tank 3 feet underground, and the vent about 10 inches above ground so that snow or ice will not interfere with or clog up the vent.

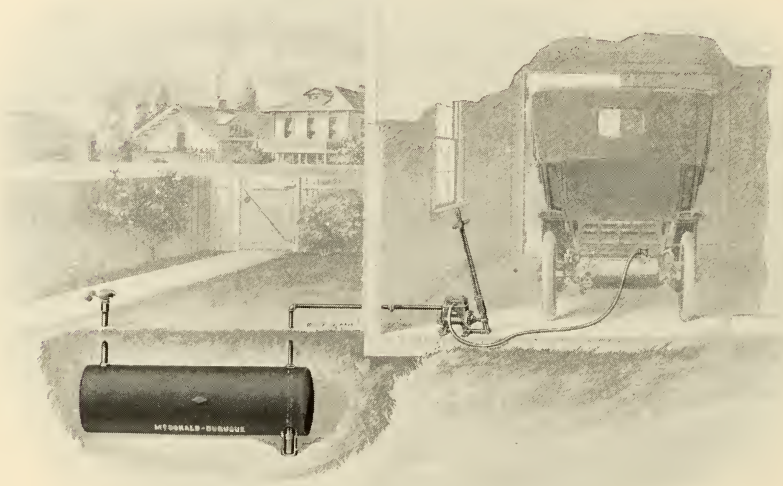
BLACK STEEL DOUBLE-RIVETED TANK, HORIZONTAL DOUBLE-ACTING OIL FORCE PUMP, AUTOMATIC DUPLEX TANK VALVE, SPECIAL FILLER PIPE WITH STRAINER, AND SPECIAL SUCTION PIPE.

Price, with 24-inch by 4-foot Tank, 100 Gallons Capacity..... **66.00**

With larger tanks, prices on application.

McDONALD GARAGE OIL SYSTEM

FIG. 300



Consisting of Horizontal Galvanized Welded Storage Tank, 2½-inch Brass Lined Pump, Automatic Vacuum and Pressure Relief Valve, Suction Strainer, Flexible Hose, and Automatic Filler Valve.

TANKS MADE OF ⅛-INCH STOCK

Price, with 24-inch x 3-foot Tank, 64 Gallons..... **90.00**

TANKS MADE OF 3/16-INCH STOCK

Price, with 24-inch x 3-foot Tank, 64 Gallons..... **96.00**

Systems with larger tanks will be quoted upon application.

USE LIQUID GUM SHELLAC ON ALL THREADS TO INSURE TIGHT JOINTS

LEATHER BELTING

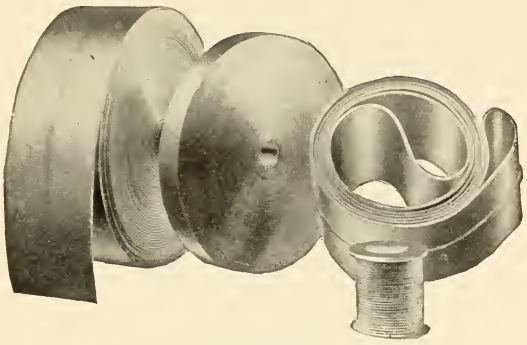


Plate E11071

Adopted November 21, 1906

Width Inches	Price, per Foot Single	Double	Width Inches	Price, per Foot Single	Double	Width Inches	Price, per Foot Single	Double
1/2	.12	.24	6 1/2	1.56	3.12	27	6.48	12.96
5/8	.15	.30	7	1.68	3.36	28	6.72	13.44
3/4	.18	.36	8	1.92	3.84	29	6.96	13.92
7/8	.21	.42	9	2.16	4.32	30	7.20	14.40
1	.24	.48	10	2.40	4.80	32	7.68	15.36
1 1/4	.30	.60	11	2.64	5.28	34	8.16	16.32
1 1/2	.36	.72	12	2.88	5.76	36	8.64	17.28
1 3/4	.42	.84	13	3.12	6.24	38	9.12	18.24
2	.48	.96	14	3.36	6.72	40	9.60	19.20
2 1/4	.54	1.08	15	3.60	7.20	42	10.08	20.16
2 1/2	.60	1.20	16	3.84	7.68	44	10.56	21.12
2 3/4	.66	1.32	17	4.08	8.16	46	11.04	22.08
3	.72	1.44	18	4.32	8.64	48	11.52	23.04
3 1/4	.78	1.56	19	4.56	9.12	50	12.00	24.00
3 1/2	.84	1.68	20	4.80	9.60	52	12.48	24.96
3 3/4	.90	1.80	21	5.04	10.08	54	12.96	25.92
4	.96	1.92	22	5.28	10.56	56	13.44	26.88
4 1/2	1.08	2.16	23	5.52	11.04	60	14.40	28.80
5	1.20	2.40	24	5.76	11.52	64	15.36	30.72
5 1/2	1.32	2.64	25	6.00	12.00	68	16.32	32.64
6	1.44	2.88	26	6.24	12.48	72	17.28	34.56

ROUND BELTS

Diameter.....inches	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
Price, Twisted.....per foot	.08	.12	.17	.22	.27	.38	.48	.60	.80	.96
" Solid..... "	.07	.09	.14	.18	.24	...	...	...	...	...

ROUND BRAIDED BELTS

Diameter.....inches	3/8	1/2	5/8	3/4	7/8	1
Price.....per foot	.27	.38	.48	.60	.80	.96

RUBBER BELTING

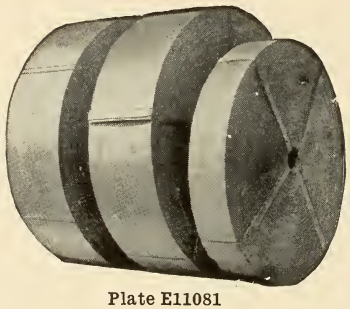


Plate E11081

In Effect May 2, 1910

Width Inches	Price, per Foot							Width Inches	Price, per Foot						
	2-ply	3-ply	4-ply	5-ply	6-ply	7-ply	8-ply		2-ply	3-ply	4-ply	5-ply	6-ply	7-ply	8-ply
1	.09	.11	.13	....	....	....	....	18	1.55	1.87	2.22	2.77	3.33	3.88	4.44
1¼	.11	.13	.16	....	....	....	....	20	1.74	2.09	2.49	3.10	3.73	4.35	4.97
1½	.13	.15	.19	.23	....	....	....	22	1.94	2.33	2.77	3.47	4.16	4.85	5.54
1¾	.15	.17	.22	.27	....	....	....	24	2.16	2.60	3.08	3.85	4.62	5.39	6.16
2	.18	.20	.25	.31	.37	....	....	26	2.38	2.86	3.39	4.23	5.08	5.93	6.78
2½	.22	.25	.31	.38	.46	....	....	28	2.60	3.12	3.70	4.62	5.54	6.47	7.39
3	.26	.30	.37	.45	.55	....	....	30	2.82	3.39	4.00	5.00	6.00	7.00	8.00
3½	.30	.35	.43	.53	.65	....	....	32	3.04	3.65	4.31	5.39	6.47	7.55	8.62
4	.34	.40	.50	.61	.75	.86	....	34	3.26	3.92	4.62	5.78	6.93	8.09	9.24
4½	.38	.45	.55	.69	.84	.96	....	36	3.48	4.18	4.93	6.16	7.39	8.62	9.86
5	.42	.50	.61	.76	.91	1.06	....	38	3.70	4.44	5.24	6.55	7.85	9.16	10.47
6	.50	.60	.72	.89	1.08	1.25	1.44	40	3.92	4.71	5.55	6.93	8.32	9.70	11.09
7	.59	.70	.84	1.04	1.25	1.46	1.68	42	4.14	4.97	5.85	7.32	8.78	10.24	11.70
8	.67	.80	.96	1.19	1.44	1.68	1.92	44	4.36	5.24	6.16	7.70	9.24	10.78	12.32
9	.76	.90	1.07	1.34	1.60	1.88	2.16	46	4.58	5.50	6.47	8.08	9.70	11.32	12.94
10	.84	1.00	1.20	1.49	1.77	2.09	2.40	48	4.80	5.76	6.73	8.47	10.16	11.86	13.55
11	.92	1.10	1.32	1.63	1.96	2.29	2.62	50	5.02	6.03	7.08	8.85	10.63	12.40	14.17
12	1.00	1.20	1.43	1.78	2.15	2.50	2.85	52	5.22	6.29	7.39	9.24	11.09	12.94	14.78
13	1.10	1.30	1.56	1.95	2.34	2.73	3.12	54	5.46	6.56	7.70	9.63	11.55	13.48	15.40
14	1.19	1.40	1.69	2.11	2.54	2.96	3.39	56	5.68	6.82	8.01	10.01	12.01	14.01	16.02
15	1.28	1.52	1.83	2.28	2.74	3.19	3.65	58	5.90	7.08	8.32	10.40	12.47	14.55	16.63
16	1.37	1.65	1.96	2.44	2.94	3.42	3.92	60	6.12	7.35	8.62	10.78	12.94	15.09	17.25

Endless belts same list as above with extra charge of 6 feet for making endless for belts less than 12 inches wide, and 8 feet for belts 12 inches and wider.

All other widths and plies at proportionate prices.

Seven-ply belts and heavier made to order for purposes where great strength is required. To obtain lists on heavier belts, use 4-ply as a basis, adding 25 per cent for each additional ply.

BELTING

CANVAS STITCHED BELTING

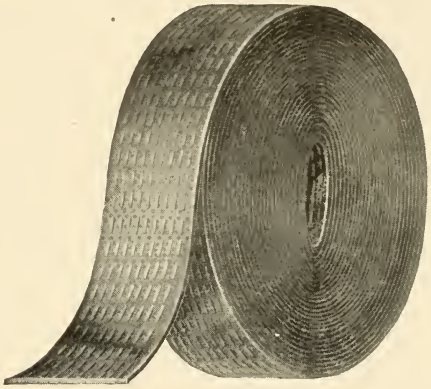


Plate E11091
Adopted October 1, 1912

Width Inches	Price, per Foot				Width Inches	Price, per Foot					Width Inches	Price, per Foot				
	4-ply	5-ply	6-ply	8-ply		4-ply	5-ply	6-ply	8-ply	10-ply		4-ply	5-ply	6-ply	8-ply	10-ply
1	.12	....	....	....	9	.90	1.13	1.35	1.80	....	26	3.12	3.90	4.68	6.24	7.80
1½	.18	....	....	....	10	1.00	1.25	1.50	2.00	....	28	3.36	4.20	5.04	6.72	8.40
2	.24	.30	.36	....	11	1.10	1.38	1.65	2.20	....	30	3.60	4.50	5.40	7.20	9.00
2½	.30	.38	.45	....	12	1.20	1.50	1.80	2.40	3.00	32	3.84	4.80	5.76	7.68	9.60
3	.35	.44	.53	....	13	1.43	1.79	2.15	2.86	3.58	34	4.08	5.10	6.12	8.16	10.20
3½	.39	.49	.59	....	14	1.54	1.93	2.31	3.08	3.85	36	4.32	5.40	6.48	8.64	10.80
4	.43	.54	.65	.86	15	1.65	2.06	2.48	3.30	4.13	38	4.94	6.18	7.41	9.88	12.35
4½	.47	.59	.71	.94	16	1.76	2.20	2.64	3.52	4.40	40	5.20	6.50	7.80	10.40	13.00
5	.51	.64	.77	1.02	18	1.98	2.48	2.97	3.96	4.95	42	5.46	6.83	8.19	10.92	13.65
6	.60	.75	.90	1.20	20	2.20	2.75	3.30	4.40	5.50	44	5.72	7.15	8.58	11.44	14.30
7	.70	.88	1.05	1.40	22	2.42	3.03	3.63	4.84	6.05	46	5.98	7.48	8.97	11.96	14.95
8	.80	1.00	1.20	1.60	24	2.64	3.30	3.96	5.28	6.60	48	6.24	7.80	9.36	12.48	15.60

Charge for splice on endless belts. All belts 12 inches wide or under, 3 feet is the minimum charge. Belts over 12 inches wide, the charge is to be the equivalent of three times the width of the belt.

ENDLESS STITCHED CANVAS THRESHER BELTS

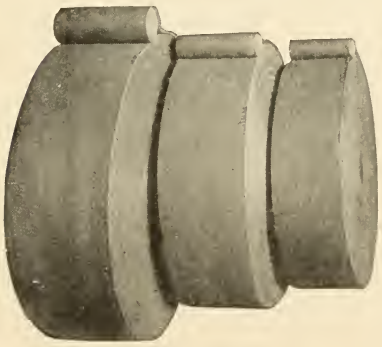


Plate E11092

Standard Stock Belts

Width, 6 in.;	4-ply.	Lengths, ft.,	60, 80, 100, 120, 130, 140, 150, 160.
" 7 "	4 "	" "	80, 100, 120, 130, 140, 150, 160.
" 7 "	5 "	" "	140, 150, 160.
" 8 "	4 "	" "	80, 100, 120, 130, 140, 150, 160.
" 8 "	5 "	" "	150, 160.
" 8 "	6 "	" "	150, 160.
" 9 "	5 "	" "	150, 160.
" 9 "	6 "	" "	150, 160.

Exact length of endless belts is 3 feet less than listed length, that amount being used in splice.

Any special width, ply, or length of red canvas belt may be made endless at the factory.

Time required, two weeks to properly stretch and set.

BELT LACINGS, ETC.

LACE LEATHER

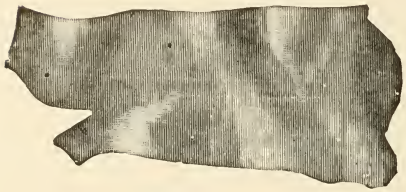


Plate E11101

CUT LACING

Plate E11102

LACE LEATHER

Price, Rawhide	per square foot	.....
" Tanned	"	.....
" Waterproof	"	.....

CUT LACING—TANNED OR RAWHIDE

Width ..... inches	1/4	5/16	3/8	7/16	1/2	5/8	3/4
Price ..... per 100 feet	2.50	3.00	3.75	4.50	5.50	6.50	7.50

METALLIC BELT LACING

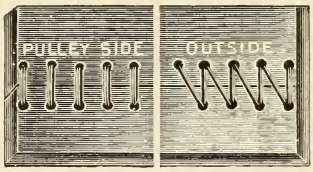


Plate E11103

COPPER RIVETS AND BURRS

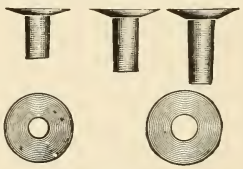


Plate E11104

METALLIC BELT LACING

Number	0	1	2	2	3
For Belts	Single	Single	Single	Double	Double
Width of Belt..inches	2½ and under	3 to 5	6 to 12	6 and under	6 and over
Price .....per 100 feet	2.00	2.00	2.00	2.00	2.00

COPPER RIVETS AND BURRS

Number	3 to 7	8	9	10	11	12	13	14	15
Price, in 1 or 4-pound Boxes.....per pound	.49	.50	.52	.54	.56	.58	.60	.65	.70
" "½"¾ " " ..... "	.52	.53	.55	.57	.59	.61	.63	.68	.73

BELT HOOKS

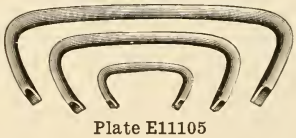


Plate E11105

Number	15	14	13	12	11	10	9	8	7	6	5
Price .....per 1000	2.00	2.40	2.60	2.80	3.00	3.50	4.00	5.00	6.00	8.50	11.00

Number	4	3	2	1	Size ....inches	3	3½
Price .....per 1000	14.00	16.00	20.00	30.00	Price, per 1000	60.00	70.00

BELT TOOLS

BELT PUNCHES

ROUND

Plate E11111

SOCKET

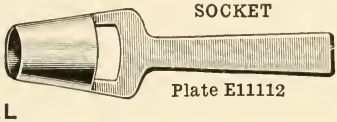


Plate E11112

ROUND AND OVAL

Number	0, 1, 2, 3, 4, 5, 6	7, 8, 9	10, 11, 12	13	14, 15, 16
Price, Round ..... per dozen	3.25	4.25	5.25	6.25	8.25
" Oval ..... "	3.25	4.25	5.25	6.25	8.25

SOCKET

Size ..... inches	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
Price .... per dozen	9.50	10.00	10.50	11.00	11.50	12.00	12.50	13.00	13.50	14.00
Size ..... inches	1 1/16	1 1/8	1 3/16	1 1/4	1 5/16	1 3/8	1 7/16	1 1/2	1 5/8	1 3/4
Price ..... each	....	....	....	....	....	....	....	....	2.95	3.20
" .... per dozen	16.00	18.00	20.00	22.00	24.00	26.00	29.00	32.00	....	....
Size ..... inches	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2	2 5/8	2 3/4	2 7/8	3
Price ..... each	3.50	3.90	4.30	4.80	5.40	6.10	6.80	7.50	8.25	9.00

LEVER

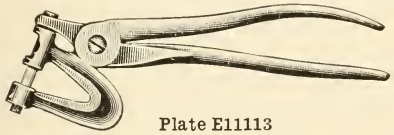


Plate E11113

SPRING

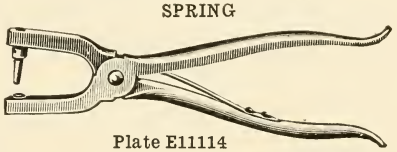


Plate E11114

LEVER

Price, 8-inch ..... per dozen	12.65
" extra Tubes, Nos. 12 to 2 ..... "	3.50
Price, 10-inch ..... per dozen	13.70
" extra Tubes, 1/4 and 3/16-inch ..... "	4.00

SPRING

Style	Drive Tubes	Screw Tubes
Price ..... per dozen	6.00	8.00
" extra Tubes ..... "	2.50	4.00

REVOLVING SPRING PUNCH

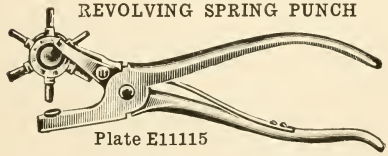


Plate E11115

COMBINATION CUTTER AND PLIER

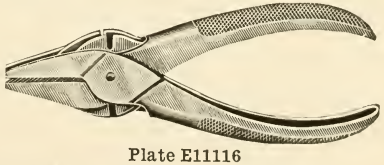


Plate E11116

REVOLVING SPRING PUNCHES

Number of Tubes	4	6
Price, Revolving Punches ..... per dozen	18.00	21.00
" extra Tubes ..... "	2.00	

COMBINATION CUTTERS AND PLIERS

Size ..... inches	5 1/2
Price ..... each	.75

SHEET PACKINGS

CLOTH INSERTED

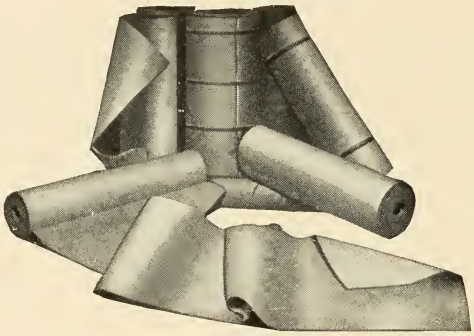


Plate E11121

CLOTH INSERTION, CLOTH ON ONE SIDE OR BOTH SIDES

Thickness..... inches	1/32	1/16	3/32	1/8	3/16	1/4
Price, 1-ply..... per pound	.65	.60	....	....	....	....
" 2 " ..... "	....	.63	.58	.55	....	....
" 3 " ..... "	....	....	.61	.58	.55	....
" 4 " ..... "	....	....	....	.61	.58	.55

One ply of cloth to every 1/16 inch thickness. 3 cents per pound additional will be charged for each extra ply of cloth. Carried in stock in rolls 36 inches wide and about 20 yards long.

RAINBOW

This packing is especially adapted for very high pressure and is not affected by any degree of steam heat. It will not harden or blow out. Not affected by oils, ammonia, liquors, steam, heat or alkalies. Made in rolls of about 200 pounds each. Standard width, 36 inches; 1/32, 1/16, 3/32, 1/8, 3/16, 1/4, 3/8 and 1/2 inch thick.

Price.....per pound	1.00

RED AND BLACK ASBESTOS METALLIC

A durable asbestos metallic packing. Gives perfect results against high pressure or superheated steam. Furnished, if desired, with graphite finish one or both sides. Made 39 inches wide and 1/32, 1/16 or 1/8 inch thick.

Price.....per pound	1.25

BLACK SHEET

A high grade, tough, oil-proof black packing. Gives best results against high pressure steam, air, ammonia, acids, alkalies, hot oils, syrups and for all other service where a rubber packing is required. Made 1/32, 1/16, 3/32, 1/8, 3/16 and 1/4 inch thick.

Price.....per pound	1.00

RED SHEET

This packing has great heat resisting qualities. Made 36 inches wide and in 1/32, 1/16, 3/32, 1/8, 3/16 and 1/4 inch thicknesses.

Price.....per pound	1.00

FIBRE SHEET

This packing is guaranteed against any temperature. For oil, steam, water, ammonia, acids, etc.

Price, in Sheets 40x40 inches, 1/32 and 1/16 inch thick.....per pound	2.00

PACKINGS

ROUND PISTON

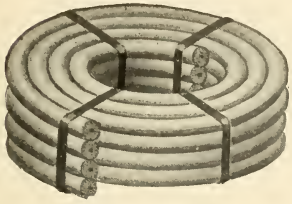


Plate E11131

RUBBER BACK

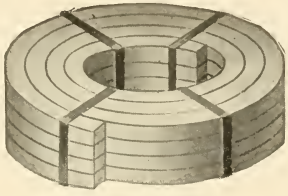


Plate E11132

HYDRAULIC

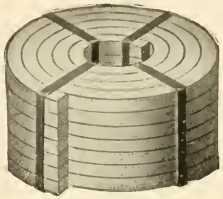


Plate E11133

Price, Round and Square Piston Packing	per pound	.85
" Square Piston Packing, with Rubber Back	"	1.25
" Hydraulic or Pump Piston Packing	"	1.60

SECTIONAL RING

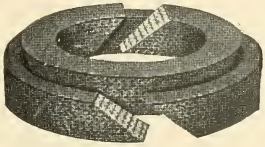


Plate D11134

EXPANSION RING

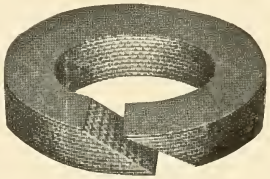


Plate E11135

Price, Sectional, Expansion and Spiral Ring Packing	per pound	1.50

RED RUBBER CORE PACKING

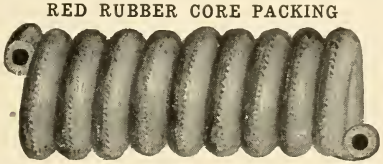


Plate E11136

FLAT GUM CORE PACKING

Plate E11137

Price, Red Rubber Core, Wrapped with Loosely Woven Duck and Impregnated with Plumbago	per pound	.80
" Flat Gum Core Packing, Boxes, 5 and 10 lbs., Reels 25 to 100 lbs.	"	.80
" Round Gum Core Packing, same as Flat Gum Core	"	.80

DIAGONAL EXPANSION PACKING

REGULAR

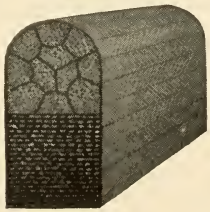


Plate E11138

SPECIAL

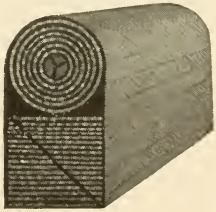


Plate E11139

Price, Regular	per pound	1.50
" Special	"	1.75

PACKINGS

ASBESTOS AND RUBBER-WOUND CLOTH PACKING

STYLE A

Plate E11141

STYLE B

Plate E11142

STYLE C

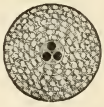


Plate E11143

STYLE D

Plate E11144

STYLE E

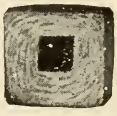


Plate E11145

Price, All Styles, ⅛ inch up.....per pound	1.00
" " " Wire Inserted, ⅛ inch up..... "	1.50

These packings are made in several different styles, with or without rubber core, also with metal insertion. They are formed of successive layers of asbestos cloth, each layer having a thin coat of rubber composition to make the layers adhere to each other. When the cloth is wound to form a certain size or thickness, the packing is given a coating of India rubber solution. These packings are very firm and elastic, absolutely waterproof, not affected by heat and are frictionless.

ASBESTOS ROPE

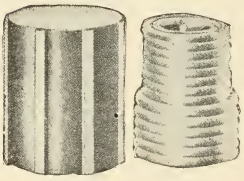


Plate E11146

ASBESTOS WICK

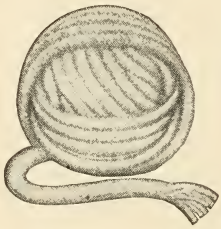


Plate E11147

ASBESTOS VALVE STEM PACKING

Plate E11148

ASBESTOS ROPE

Price, Braided or Standard Twist, Reels of 10, 15, 25 and 50 pounds..per pound	.50

ASBESTOS WICK

Price, Standard Grade, ¼, ½ and 1-pound Balls, 5 and 10-pound Spools, per pound	.50

CANDLE WICKING

Price.....per pound	.25

ASBESTOS VALVE STEM PACKING

Price, 3/16, ¼ and 5/16 inch.....per pound	1.00

ASBESTOS METALLIC

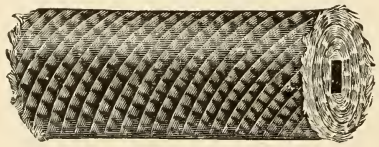


Plate E11149

STITCHED PUMP PACKING

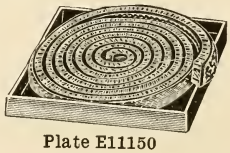


Plate E11150

ASBESTOS METALLIC

Price, Asbestos Metallic, Sizes ⅜ to 2½ inches.....per pound	1.50

Cannot char, burn or blow-out. For steam feeds and high pressures.

STITCHED PUMP PACKING

Price, all Sizes.....per pound	1.25

This packing is suitable for hot or cold service, ammonia, oil and chemical pumps.

PACKINGS

RAWHIDE HYDRAULIC

Plate E11151

SQUARE FLAX IN BOX

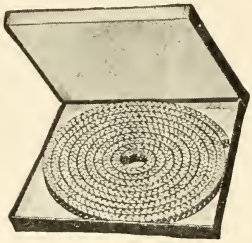


Plate E11152

SQUARE FLAX ON REEF

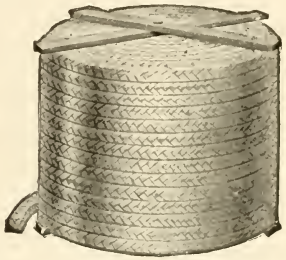


Plate E11153

RAWHIDE HYDRAULIC

Rawhide packing will not cut a rod or cylinder, on account of the nature of the material of which it is composed, namely a specially prepared rawhide, which is a lubricant of itself, consequently anti-frictional.

Price, Size ¼ to 2-inch.....per pound 2.00

SQUARE FLAX

The best or first grade is made of the finest grade of pure Archangle extra long Russian flax and possessing great strength. The medium grade is braided without cores and center. The competition grade is a flax not possessing fiber of such length as the two first grades.

Price, Best or First Grade, ¼ to 2 inches, in Box or Reels.....per pound .60
" Medium Grade, ¼ to 2 inches, in Box or Reels..... " .50
" Competition, ¼ to 2 inches, in Box or Reels..... " .40

RUBBER BACK FLAX

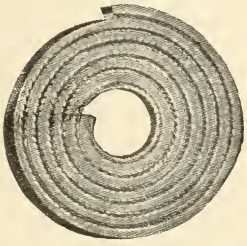


Plate E11154

SQUARE HYDRAULIC FLAX

Plate E11155

HEMP AND JUTE

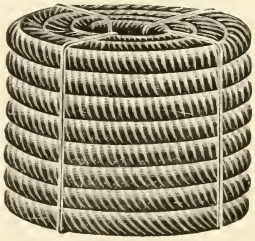


Plate E11156

RUBBER BACK FLAX

Rubber back flax is especially adapted for all hydraulic and elevator work.

Price, Sizes ¼ to 1½-inch, in Coils of about 15 feet.....per pound 1.50

SQUARE HYDRAULIC FLAX

For all hydraulic purposes, cold water ends of pumps, elevator rods and cylinders, presses, accumulators, oil and brine pumps, etc.

Price, Size ¼ to 1½-inch.....per pound 2.00

HEMP AND JUTE PACKING

Price, American Hemp Packing.....per pound ....
" Italian A " " ..... " ....
" " B " " ..... " ....
" " AA " " ..... " ....
" Jute Packing, for Caulking..... " ....

WASTE, OAKUM, FRICTION BOARD, ETC.

COTTON WASTE

Plate E11161

Number	1	2	3
Price, White ..... per pound	....	....	....
" Colored ..... "	....	....	....

WOOL WASTE

Price, Colored ..... per pound .....

Furnished in 50, 100 and 500-pound bales.

OAKUM AND CALKING COTTON

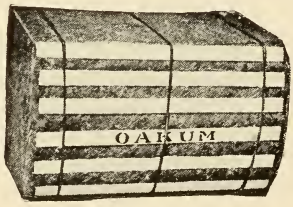


Plate E11162

Price, Navy Oakum, 50-pound Bales ..... per bale ....
" Plumbers' Oakum, 50-pound Bales ..... " ....
" Calking Cotton, 100-pound Bales ..... per pound ....

FRICTION BOARD

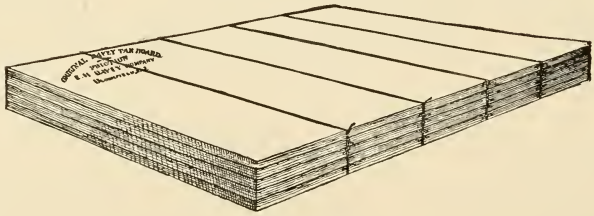


Plate E11163

Number	3	4	5	6	7	8	9	10
Thickness ..... inches	1/3	1/4	1/5	1/6	1/7	1/8	1/9	1/10
Size of Davey Board ..... "	33x44	33x44	33x44	33x44	33x44	33x44	33x44	33x44
" " Granite " ..... "	.....	35x42	35x42	35x42	.....	35x42	.....	35x42
" " Red " ..... "	41x41	41x41	41x41	41x41	.....	.....	.....	.....
Number of Boards to Bundle ...	3	4	5	6	7	8	9	10
Weight, per Bundle ..... *pounds	50	50	50	50	50	50	50	50

*Approximately.

DIXON'S GRAPHITE PRODUCTS

TICONDEROGA FLAKE GRAPHITE

Plate E11171

Dixon's Flake Graphite has many valuable applications as a lubricant for cylinders, valves and bearings, either alone or mixed with oils and greases. It is also valuable to engineers and mechanics for coating gaskets and packing, for pipe fitting, etc.

Dixon's Ticonderoga Flake Graphite is prepared in the coarser (or No. 1) flake and the finer (or No. 2) size. Users of Dixon's Graphite will do well to keep both kinds on hand, as each has special advantages.

If the finely ground (No. 2) graphite is desired, so specify in the order. Price the same for Nos. 1 and 2.

Trade No.	Description and Styles of Packages	Price
632	1-pound Paper Cans, 36 in Case ..... per package	.40
633	5 " Tin " Screw-top, 10 in Case ..... "	1.75
634	10 " " " " " 5 " " ..... "	3.25
644	25 " Paper Bags, enclosed in Case ..... "	7.50
645	50 " " " " " " ..... "	14.00
646	100 " Kegs ..... per pound	27.00
646½	200 " " ..... "	52.00
647	400 " Barrels ..... "	100.00

GRAPHITE PIPE JOINT COMPOUND

For threaded and flanged joints of steam, water, gas, oil, brine and air piping; also valuable on gaskets, boiler tube caps, bolts, nuts, turnbuckles, lag screws, etc. This compound makes tight joints, but is not a cement which hardens.

Plate E11172

Trade No.	Style of Packages	Price
693	1-lb. Tin Cans, 36 in Case . . per pound	.25
694	5 " " " 12 " " . . "	.22
695	10 " " " 6 " " . . "	.19
696	25 " " " ..... "	.18
697	50 " Kegs ..... "	.17½
698	100 " " ..... "	.17

Joints made up with this material not likely to rust, corrode or stick, but may be separated without difficulty. Factory claims that Dixon's Graphite Pipe Joint Compound is about four times as bulky as white lead. Comes prepared ready for use. No mixing required.

CEMENTS AND PIPE COMPOUNDS

SMOOTH-ON

No. 1 AND No. 2 COMPOUND

Plate E11181

No. 3 CEMENT

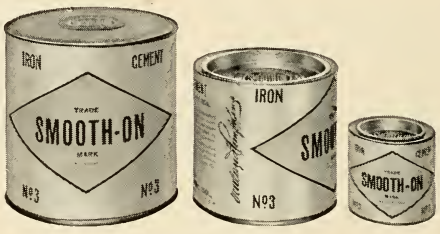


Plate E11182

No. 1 and No. 2, in blue labeled cans. Prepared in powder form for repairing leaks or breaks in castings and for making connections in steam or hydraulic work. No. 1 is quick hardening, No. 2 slow hardening, and hydraulic. Applied as a paste or putty.

No. 3 Elastic Cement, in gray labeled cans. Especially prepared in paste form, for use on all seams of boilers or tanks to stop leaks, also for boiler patching and for screw thread joints. Applied as a paint, paste or putty to hot or cold metal.

No. 4 CASTINGS

Plate E11183

No. 5 CALKING CEMENT

Plate E11184

No. 4 Castings, in yellow labeled cans. This is an iron cement made in powder form for repairing blemishes, blowholes or defects in iron or steel castings. Made in two grades—A, for fine castings; B, for coarse castings. Applied as a putty.

No. 5 Calking Cement for plumbers, in red labeled cans. Made in powder form in two strengths—Regular and Special—Regular for soil pipe and greenhouse work, Special for water and gas main joints for high pressure.

Price, Smooth-On Iron Cement Nos. 1 and 2 in 1, 5, 10 and 25-lb. Tins.....	per lb.	.50
" " " Elastic Cement No. 3 in 1, 5, and 10-lb. Tins.....	"	.50
" " " Castings No. 4, Grades A and B, in 1, 5, 10 and 25-lb. Tins	"	.50
" " " Joints No. in 1, 5, 10 and 25-lb. Tins..... ..	"	.50

Plate E11185

DIAMOND PIPE COMPOUND

This is a ready prepared compound for threaded joints. It is not affected by heat or cold. It will make a perfectly tight joint, yet one that can be readily broken.

Price, 1 Pound Cans	.25
" 5 " "	1.00

HOSE

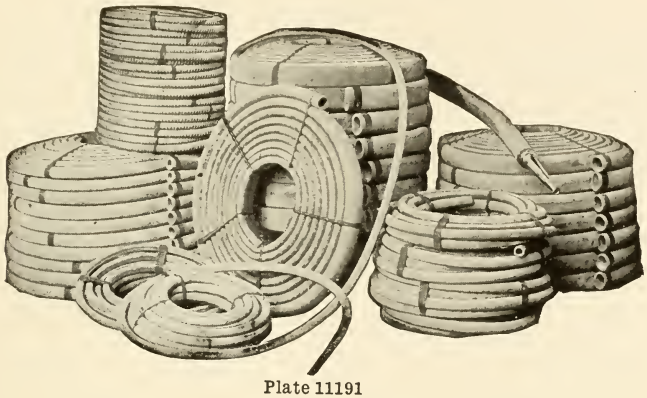


Plate 11191

WATER CONDUCTING HOSE

Two-ply hose, designed to conduct water under moderate pressure only. Sizes above 3-inch are mainly for tank hose; 3-ply hose, of medium strength, suitable for hydrants, garden and pump uses, street sprinkling, washing decks, etc.

Four-ply hose, recommended for all purposes where a particularly strong and reliable article is required.

Five and 6-ply hose, for use where great resistance to pressure or very severe service is required.

Internal Diameter.....inches	½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾
Price, 2-ply .....per foot	.20	.25	.33	.42	.50	.58	.66	.75	.83	.92
" 3 " ..... "	.25	.30	.40	.50	.60	.70	.80	.90	1.00	1.10
" 4 " ..... "	.30	.37	.50	.62	.75	.87	1.00	1.12	1.25	1.37
" 5 " ..... "	.37	.46	.62	.77	.93	1.08	1.25	1.40	1.56	1.71
" 6 " ..... "	.45	.55	.75	.93	1.12	1.30	1.50	1.68	1.87	2.05

Internal Diameter.....inches	3	3½	4	5	6	7	8	9	10	....
Price, 2-ply .....per foot	.99	1.16	1.32	1.65	1.98	2.31	2.64	2.97	3.33	....
" 3 " ..... "	1.20	1.40	1.60	2.00	2.40	2.80	3.20	3.60	4.00	....
" 4 " ..... "	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	....
" 5 " ..... "	1.87	2.18	2.50	3.13	3.75	4.38	5.00	5.63	6.25	....
" 6 " ..... "	2.25	2.62	3.00	3.75	4.50	5.25	6.00	6.75	7.50	....

All intermediate sizes charged at the list price of the next larger size, thus: 1⅛-inch is charged at 1¼-inch price, etc. Furnished regularly in 25 and 50-foot lengths.

STEAM HOSE

Internal Diameter .....inches	½	¾	1	1¼	1½	1¾	2	2¼	2½
Price, 3-ply.....per foot	.47	.57	.70	.85	1.02	1.18	1.34	1.50	1.66
" 4 " ..... "	.56	.71	.87	1.04	1.25	1.45	1.66	1.87	2.08
" 5 " ..... "	.70	.87	1.07	1.30	1.56	1.81	2.07	2.33	2.60
" 6 " ..... "	.84	1.05	1.28	1.56	1.87	2.17	2.49	2.80	3.12
" 7 " ..... "	.98	1.23	1.50	1.82	2.18	2.53	2.90	3.27	3.64
" 8 " ..... "	1.12	1.41	1.70	2.08	2.50	2.90	3.32	3.74	4.16

When ordering, state steam pressure used.

NOTE.—The list on steam hose applies to brewer's, air brake, car heating and air drill hose also.

HOSE

COTTON GARDEN HOSE—RUBBER LINED

The fabric is made of the finest grade of long fibre cotton, and the rubber lining is of the best quality.

Size.....inches	½	¾	1
Price.....per foot	.20	.30	.40

COTTON MILL HOSE—RUBBER LINED

This is a reliable hose in every respect—strong, durable, and absolutely waterproof. It is light and pliable, reels closely, and will not sweat or leak, and is, therefore, well adapted for protection against fire in factories, public buildings, etc. Woven or knit, same list.

Size.....inches	1¼	1½	2	2½
Price.....per foot	.45	.50	.65	.80

COTTON JACKET FIRE HOSE—RUBBER LINED

Cotton jacket fire hose is adapted for use in city fire departments and in any place where the pressure is heavy. Woven or knit, same list.

Size.....inches	1½	2	2½	3	3½
Price, 2-ply.....per foot	.80	.90	1.00	1.90	2.20
" 3 " ..... "	....	....	1.40	2.20	2.65

COTTON JACKET SINGLE BODY FIRE HOSE—RUBBER LINED

Single body fire hose is intended for use in fire departments in towns and small cities, and in any place where there is a moderately heavy pressure. Twilled, woven or knit, same list.

Size.....inches	1¼	1½	2	2¼	2½
Price.....per foot	.75	.80	.90	.95	1.00

UNDERWRITERS' COTTON FIRE HOSE

Realizing the importance of a first-class hose to be used in case of fire, and to determine the reliability of the various brands offered for sale for factory fire protection, the Associated Factory Mutual Fire Insurance Companies have conducted a large number of exhaustive experiments, and for "outside" use at hydrants, on hose reels, and all hose to be used in the yard, recommend a medium weight rubber lined cotton hose as being the best; and these companies require that all such hose shall not burst at less than 400 pounds pressure, if properly tested when new; shall have a 2⅝-inch waterway, and a specially smooth rubber lining of the best quality.

Price, 2⅝-inch, taking 2½-inch Couplings.....per foot	1.00

UNDERWRITERS' LINEN FIRE HOSE

The Underwriters' Linen Fire Hose we offer is also made to conform with the specifications and requirements of the Associated Factory Mutual Fire Insurance Companies, and the National Fire Protection Association, by which they are accepted.

Price, 2½-inch.....per foot	1.00

LINEN FIRE HOSE

Linen fire hose is extensively used in mills, hotels, public buildings, etc., where it is necessary to keep hose constantly hung up in dry places to be used in case of fire.

When linen hose is used without a rubber lining, as is usually the case, there is nothing about it that will deteriorate with age to any great extent.

Unlined linen hose is woven as tight as possible to prevent leakage when water is first let in the hose. As soon as the hose is thoroughly wet the yarns swell and the hose becomes water-tight.

Size.....inches	¾	1	1¼	1½	2	2¼	*2½
Price, Unlined.....per foot	.40	.45	.50	.60	.70	.75	.80
" American Underwriters' "	.50	.60	.65	.75	.90	.95	1.00

*Fire department size.

SUCTION HOSE

SMOOTH BORE

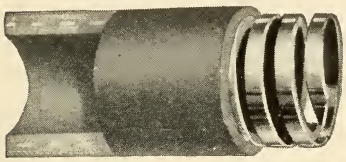


Plate E11211

WIRE LINED

Plate E11212

Size ..... inches	¾	1	1¼	1½	1¾	2	2½
Price, Smooth Bore ..... per foot	....	....	....	....	....	2.60	3.50
" Wire Lined ..... "	.70	.90	1.15	1.50	1.90	2.30	3.10
" Brass Wire Lined ..... "	.77	1.00	1.25	1.65	2.10	2.50	....
" Agricultural ..... "	....	.75	.93	1.13	1.31	1.50	1.88
" Hard Rubber ..... "	.65	.75	.93	....	....	....	....

Size ..... inches	3	3½	4	4½	5	5½	6
Price, Smooth Bore ..... per foot	4.50	5.50	6.50	7.50	8.50	9.50	10.50
" Wire Lined ..... "	4.00	4.90	5.80	6.70	7.60	8.50	9.50

Size ..... inches	6½	7	7½	8	9	10	12
Price, Smooth Bore ..... per foot	12.00	13.50	15.00	16.50	19.50	22.50	27.50
" Wire Lined ..... "	10.50	12.00	13.50	15.00	17.50	20.00	25.00

TANK PUMP

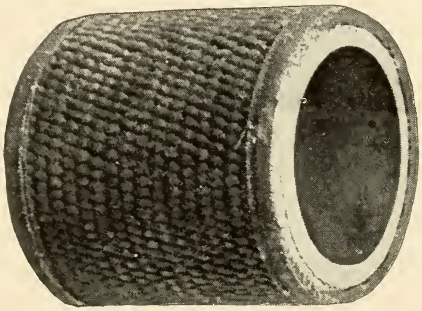


Plate E11213

This is the highest grade in suction hose for tank pump use. The inner tube of rubber is held by a spiral coil of flat wire. Over the tube are several plies of well frictioned duck, a heavy rubber cover, and over this a very heavy seamless woven jacket. This jacket is waterproof treated. This hose WILL NOT KINK.

Price ..... per foot	.60

Can be furnished in 2-inch size, in 15, 20 and 25-foot lengths.

RUBBER TUBINGS, ETC.

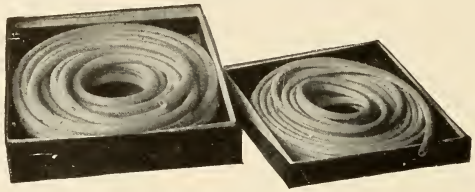


Plate E11221

RUBBER TUBING

Size, Inside Diameter..... inches	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
Price, Plain or Corrugated..per ft.	.08	.12	.16	.18	.20	.25	.30	.35	.40	.45
" Cloth Insertion.... "	.10	.14	.18	.20	.23	.28	.33	.38	.44	.50

STEAM AND BEER TUBING

Number of Ply	2	3	4	5	6
Price, 1/4-inch Steam Tubing ..... per foot	.20	.30	.40	.50	.60
" 5/16 " " " ..... "	.25	.35	.45	.55	.65
" 3/8 " " " ..... "	.30	.40	.50	.60	.70
" 3/8 " Beer " ..... "	....	....	.28	.32	.36

FIRE EXTINGUISHER AND ELEVATOR TUBING

Size .....inches	3/8	7/16	1/2
Price, 3-ply Fire Extinguisher Tubing..... per foot	.36	.44	.50
" 3 " Elevator Tubing ..... "	....	....	.50

RUBBER DIAPHRAGMS

LOW PRESSURE

Plate E11222

HIGH PRESSURE

Plate E11223

PUMP

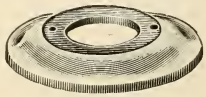


Plate E11224

Diameter .....inches	6 1/2	8	8 3/4	9	9 1/2	11 1/4	14 1/2
Price, Low Pressure Diaphragms..each	....	1.00	....	1.10	1.20	....	....
" High " " "	.60	....	.80	....	....	1.60	3.00

Pump diaphragms, 13 inches in diameter, for Gould, Loud, and Edison Pumps, 3.00 each.

RUBBER VALVE BALL

Plate E11225

RUBBER PUMP VALVES

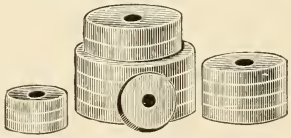


Plate E11226

RUBBER AND LEATHER HOSE WASHER

Plate E11227

RUBBER VALVE BALLS

Size ..... inches	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/4
Price...per dozen	1.00	1.40	1.90	2.50	3.25	4.00	4.75	5.50	6.50	8.00
Size ..... inches	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/2	5	6
Price...per dozen	10.50	13.00	15.50	19.50	23.50	29.25	35.00	54.50	70.00	115.00

Pump valves: Hard, medium, soft, per lb., 1.00; special, 2.00: condensor, 3.00.
Rubber hose washers, 3/4-inch, per hundred, .75.
Leather hose washers, 3/4-inch, per hundred, 1.00.

BRASS HOSE GOODS

HOSE NIPPLES

MALE

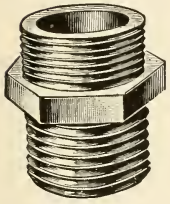


Plate E11231

MALE—I. P. AND HOSE THREAD

MALE AND FEMALE—FEMALE I. P. THREAD
MALE HOSE THREAD

MALE AND FEMALE

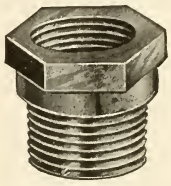


Plate E11232

Size.....inches	½	¾	1	1¼	1½	2
Price, Male.....per dozen	3.50	3.50	5.00	9.00	10.00	14.00
" Female..... "	3.50	3.50	....	....	....	....

REDUCING

Plate E11233

REDUCING—I. P. FEMALE THREAD
MALE HOSE THREAD

FEMALE—I. P. AND HOSE THREAD

FEMALE

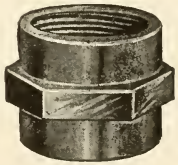


Plate E11234

Size.....inches	¾	1x¾
Price, Reducing.....per dozen	....	6.50
" Female..... "	6.50	....

HOSE REDUCER

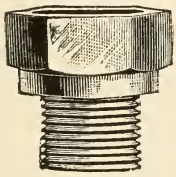


Plate E11235

HOSE THREAD BOTH ENDS

Size.....inches	1x¾
Price, Reducers.....per dozen	6.50
" Bushings..... "	6.50

HOSE BUSHING

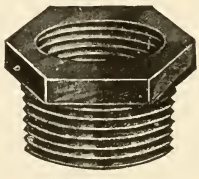


Plate E11236

PLAIN

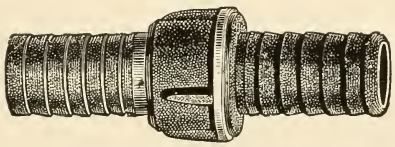


Plate E11237

CAST BRASS HOSE COUPLINGS

WITH LUGS

Plate E11238

Size.....inches	½	¾	1	1¼	1½	2
Price, Plain, Hose Threads.....per dozen	2.40	2.40	....	....	....	....
" " I. P. " ..... "	2.65	2.65	....	....	....	....
" with Lugs, Hose Threads.... "	....	....	4.40	10.00	14.00	24.00
" " " " I. P. Threads "	....	....	4.65	10.50	15.00	26.00

Female half hose coupling takes ⅔ the list of a complete coupling.
Male half hose coupling takes ½ the list of a complete coupling.

HOSE BANDS AND COUPLINGS

SHERMAN HOSE CLAMP

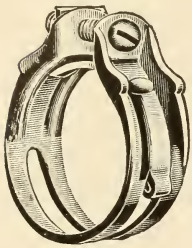


Plate E11241

CALDWELL STRAP

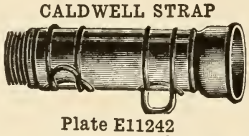


Plate E11242

STRAP FASTENER

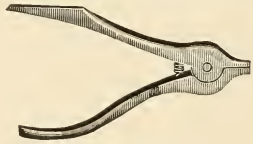


Plate E11243

EXPANSION RING COUPLING

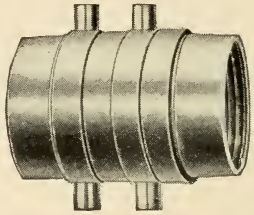


Plate E11244

SHERMAN WATER HOSE CLAMPS

Size ....inches	1/4	3/8	3/8	1/2	1/2	1/2	3/4	3/4	3/4	1
Hose ....ply	3	2	3	2	3	4	2	3	4	2
Price ....per dozen	.60	.60	.60	.60	.60	.60	.60	.60	.60	2.00
Size ....inches	1	1	1 1/4	1 1/4	1 1/2	1 1/2	2	2 1/4	2 1/2	3
Hose ....ply	3	4	3	4	3	4	3–4	3–4	3–4	3–4
Price ....per dozen	2.00	2.00	2.50	2.50	3.00	3.00	4.00	6.50	7.00	10.00

SHERMAN STEAM HOSE CLAMPS

Size ....inches	3/4	3/4	1	1	1 1/4	1 1/4
Hose ....ply	3	4	3	4	3	4
Inside Diameter....inches	1 7/16	1 17/32	1 5/8	1 21/32	1 15/16	1 31/32
Price ....per dozen	2.00	2.00	2.50	2.50	3.00	3.00
Size ....inches	1 1/2	1 1/2	2	2	2 1/2	2 1/2
Hose ....ply	3–4	5	3–4	5	3–4	5
Inside Diameter....inches	2 7/32	2 13/32	2 11/16	2 7/8	3 1/4	3 9/16
Price ....per dozen	3.50	4.00	5.50	6.50	8.50	9.50

DOUBLE BOLT CLAMPS

*Size ....inches	4	4 1/4	4 1/2	4 3/4	5	5 1/4	5 1/2	5 3/4	6	6 1/4	6 1/2	6 3/4	7
Price ....per dozen	11.25	13.75	15.25	16.75	18.25	19.75	21.25	22.75	24.25	26.00	28.00	30.00	32.00
*Size ....inches	7 1/4	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	....
Price ....per dozen	34.00	36.00	38.00	40.00	42.00	44.00	46.00	48.00	50.00	52.00	54.00	56.00	....

*Measurements of inside diameter.

CALDWELL HOSE STRAPS

Hose ....inches	1/2	1/2	3/4	3/4	1	1	1 1/4	1 1/4	1 1/2	1 1/2
Length ....inches	3 3/8	3 3/4	4 1/8	4 1/2	5	5 3/8	6	6 3/8	6 3/4	7 1/8
Price ....per dozen	.40	.40	.60	.60	.80	.80	1.00	1.00	1.20	1.20

HOSE STRAP FASTENERS

Size ....inches	1/2 to 1	1 1/4 to 1 1/2
Price....each	.50	.75

EXPANSION RING COUPLINGS

In order to avoid mistakes in ordering, give exact outside diameter of hose. It is always better to send sample of hose when possible. Made in five sizes: 1, 1¼, 1½, 2, and 2½-inch. We furnish free with each set, two expansion rings and a rubber washer Prices on application.

BRASS HOSE VALVES

STANDARD PATTERN

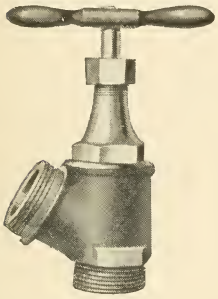


Plate E11251

GARDEN HOSE VALVES

ANGLE OPENING

Plate E11252

STRAIGHT OPENING

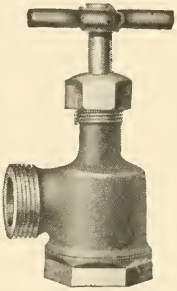


Plate E11253

Standard pattern valves have more clearance than the garden hose valves. The hose end of these valves in sizes from 1 to 2 inches, inclusive, are all fitted with the Chicago Standard hose thread. The 2½-inch is fitted with the Chicago Fire Department hose thread. If a different thread is required it will be necessary to send us a sample thread, preferably the male end of a hose coupling. An extra charge will be made for special hose thread other than those specified. When so ordered we will furnish these valves with iron pipe thread, both ends, at regular prices.

No. 50 STANDARD PATTERN

IRON HANDLE, LOOSE SWIVEL AND LEATHER DISC

Size.....inches	1	1¼	1½	2	2½
Price, Rough Body, Plain.....each	3.15	3.70	4.75	7.00	8.50
" " " Nickel-plated All Over.. "	3.65	4.30	5.50	8.00	9.75

No. 52 STANDARD PATTERN

FINISHED BRASS WHEEL, LOOSE SWIVEL AND LEATHER DISC

Size.....inches	1½	2	2½
Price, Finished All Over.....each	9.00	11.50	14.50
" " and Nickel-plated All Over..... "	10.00	12.75	16.00

No. 52 valves are made to order only.

GARDEN HOSE VALVES

ANGLE OPENING

Size.....inches	½	¾	1	1¼	1½	2	2½
Price.....each	1.65	1.65	2.20	3.40	4.75	7.00	15.00

GARDEN HOSE VALVES

STRAIGHT OPENING

Size.....inches	½	¾	1	1¼	1½	2	2½
Price.....each	1.65	1.65	2.20	3.40	4.75	7.00	15.00

Garden hose valves will be furnished with Chicago hose thread, California hose thread, or iron pipe thread at regular prices. Any other style thread will be extra. In ordering, always specify the thread required.

HOSE PIPES

UNDERWRITERS'

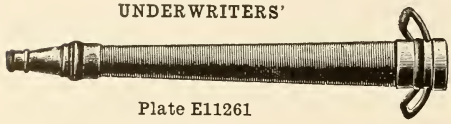


Plate E11261

SCREW TIP

Plate E11262

UNDERWRITERS' HOSE PIPES

Size ..... inches	2	2½	2½	2½
Length ..... inches	20	24	30	36
Price, Wound and Painted ..... each	9.00	11.00	12.00	15.00
" Plain Brass ..... "	7.50	9.50	11.00	13.50
" Rubber Tube, Swivel Handles ..... "	....	....	15.00	18.00
" Leather " " " ..... "	....	....	....	18.00

HOSE PIPES, SCREW TIP

Size ..... inches	¾	¾	1	1	1¼	1¼	1½	1½
Length ..... inches	7½	12	8½	12½	12	15	13	15
Price, Hose Thread ... per dozen	8.00	10.00	10.00	12.00	20.00	24.00	25.00	30.00
" Pipe " .... "	9.20	11.20	11.20	13.20	21.20	25.00	27.50	32.50

Size ..... inches	2	2	2	2½	2½	2½	2½	2½
Length ..... inches	12	15	20	15	20	24	30	36
Price, Hose Thread .... per dozen	38.00	45.00	50.00	75.00	96.00	100.00	144.00	157.00
" Pipe " ... "	41.00	48.00	53.00	78.50	99.50	103.50	150.00	163.00

PLAIN

Plate E11263

WITH COCK

Plate E11264

PLAIN HOSE PIPES

Size ..... inches	¾	¾	1	1¼	1¼	1½	1½	2	2	2½	2½	2½
Length ..... inches	3	8	4	4¾	12	5¾	12	6¾	12	7½	12	22
Hose Thread ... per doz.	4.00	7.00	5.00	12.00	18.00	18.00	22.00	26.00	34.00	37.40	55.00	92.00
Iron Pipe " ... "	5.00	8.00	6.25	13.75	19.75	19.75	24.00	29.00	39.00	39.50	60.00	120.00

HOSE PIPES, WITH COCK

Size ..... inches	¾	¾	¾	1	1	1¼	1½
Length ..... inches	6¾	8	12	8	12	12	12
Hose Thread ..... per dozen	11.00	13.00	18.00	15.00	20.00	40.00	55.00
Pipe " ..... "	12.20	14.20	19.20	18.00	23.00	43.00	60.00

Size ..... inches	2	2	2	2½	2½	2½	2½
Length ..... inches	12	20	25	20	24	30	36
Hose Thread ..... per dozen	80.00	110.00	130.00	160.00	175.00	195.00	215.00
Pipe " ..... "	83.00	113.00	133.00	170.00	185.00	205.00	225.00

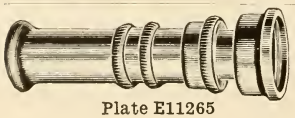


Plate E11265

BOSTON SPRAY HOSE NOZZLES

Size ..... inches	¾	1
Price ..... per dozen	5.50	10.00

LAWN SPRINKLERS

"ORIGINAL" FOUNTAIN

Plate E11271

"BABY" FOUNTAIN

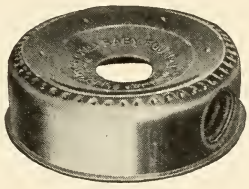


Plate E11272

"HALF-CIRCLE" FOUNTAIN

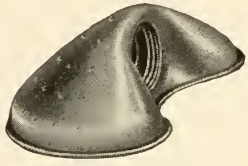


Plate E11273

"ORIGINAL" FOUNTAIN

Made of brass, handsomely buffed and polished. There are no moving parts, nothing to get out of order. May be moved about the lawn by means of the hose without shutting off the water.

Price.....each ....

"BABY" FOUNTAIN

Made entirely of brass, handsomely buffed and polished. It is arranged to sprinkle a square area.

Price.....each ....

"HALF-CIRCLE" FOUNTAIN

An efficient lawn sprinkler 4½ inches long. Delivers a spray of water that thoroughly covers but half of the full circle. The water is all thrown forward from the sprinkler so that it may be approached from the rear without shutting off the water.

Price.....each ....

"PLUVIUS"

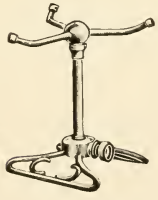


Plate E11274

"EVANSTON"

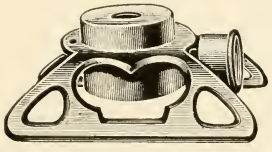


Plate E11275

C. B. G.

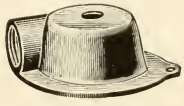


Plate E11276

Price, "Pluvius," with Three Brass Arms, each 6 inches Long; Height, 11 inches	per dozen		17.00
" "Pluvius," with Nickel-plated Arms	"		18.00
" "Evanston," Japanned, 2¼ inches High	"		4.80
" C. B. G., Japanned, 1½ inches High	"		3.20

HOSE REELS

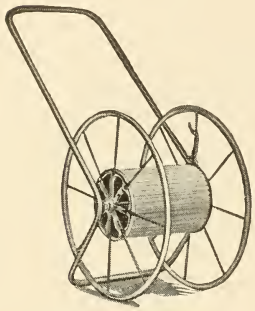


Plate E11281

STYLE B, TUBULAR, ALL METAL

Nos. 10 and 20 have corrugated galvanized iron drums; Nos. 30, 35 and 40 have open drums.

Number of Reel	10	20	30	35	40
Height of Reel ..... inches	21	24	29	32	34
Weight, Bundled ..... pounds	20	22	35	52	80
Capacity, ¾-in., 3-ply Rubber Hose. feet	100	150	400	600	800
" 1 " 4 " " " "	50	75	150	200	300
" 1¼ " 4 " " " "	....	....	100	150	250
" 1¼ " Cot. Rub. Lined Hose. "	....	100	200	350	500
" 1½ " " " " " "	....	75	150	250	400
" 2 " " " " " "	....	....	100	200	300
Price ..... each	3.50	4.00	6.50	12.00	25.00

VICTOR

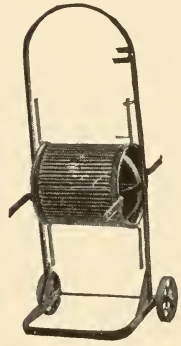


Plate E11282

CHAMPION

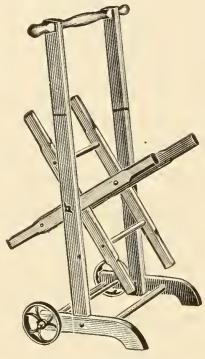


Plate E11283

STYLES C AND D

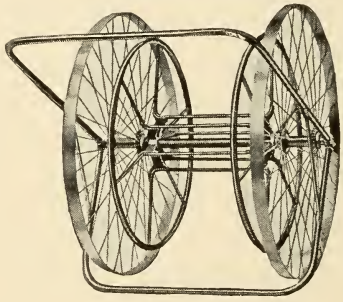


Plate E11284

VICTOR, ALL METAL

Price; Capacity, 100 feet of ¾-inch Rubber Hose; Shipping Weight, 12½ lbs. each	1.60

CHAMPION

Price, No. 1; Capacity, 100 feet of ¾-inch Rubber Hose ..... each	1.00

STYLES C AND D

Tubular steel reel and frame mounted on steel wheels. Style C, for parks, lawns, greenhouses, etc. Style D, for mills, factories, warehouses, etc.

Style	C			D		
Number of Reel	21	31	32	41	51	61
Height of Wheel ..... inches	28	34	38	42	48	52
Outside Width Over All ..... "	26	27	38	38	46	52
Weight, Bundled ..... pounds	45	58	100	150	185	200
Capacity, ¾-inch, 3-ply Rubber Hose ..... feet	200	500	800	....	....	....
" 1 " 4 " " " ..... "	100	200	350	....	....	....
" 1¼ " 4 " " " ..... "	75	150	250	....	....	....
" 1½ " 4 " " " ..... "	....	....	....	250	400	500
" 2 " 4 " " " ..... "	....	....	....	200	300	400
" 2½ " 4 " " " ..... "	....	....	....	150	250	300
" 1¼ " Cotton Rub. Lined Hose. "	150	300	500	....	....	....
" 1½ " " " " " " "	100	200	350	500	650	800
" 2 " " " " " " "	75	150	250	350	500	600
" 2½ " " " " " " "	50	100	200	250	400	500
Price ..... each	7.50	10.50	25.00	35.00	45.00	55.00

WIRT & KNOX HOSE CARTS

STYLES E AND F
FACTORY AND WAREHOUSE CART

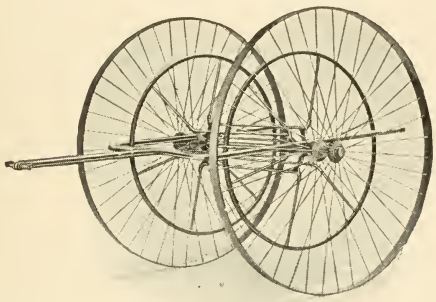


Plate E11291

STYLE H

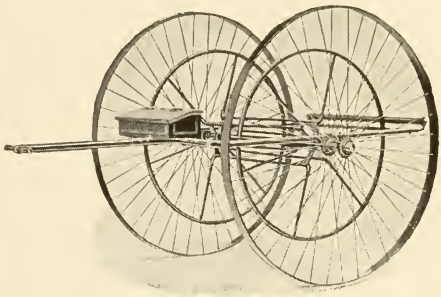


Plate E11292

Style E, suitable for large quantity of small hose or a small quantity of large hose; tubular steel reel, frame and tongue; wide tires.

Style F, tubular steel frame and reel; steel wheels. Finished in vermilion and black. Special sizes to order.

Style G, same construction as Style H, but without friction roller and brace at rear of frame. Finished in vermilion and black.

Style H, tubular steel frame and reel; steel wheels, tool box and friction roller. Finished in vermilion and black.

Style	E			F		
Number of Reel	90	100	110	101	102	103
Height of Wheel ..... inches	36	36	38	42	48	52
Width Over All ..... "	31	33	38	42	48	54
Weight, Bundled ..... pounds	75	90	100	145	175	200
Capacity, ¾-inch, 3-ply Rubber Hose .... feet	500	600	800	...	...	...
" 1 " 4 " " " .... "	200	300	400	...	...	...
" 1¼ " 4 " " " .... "	150	200	300	...	...	...
" 1½ " 4 " " " .... "	100	150	200	250	400	500
" 2 " 4 " " " .... "	...	...	...	200	300	400
" 2½ " 4 " " " .... "	...	...	...	150	250	300
" 1¼ " Cotton Rubber-Lined " .... "	300	400	500	...	...	...
" 1½ " " " " " .... "	200	300	400	500	650	800
" 2 " " " " " .... "	150	200	250	350	500	600
" 2½ " " " " " .... "	100	150	200	250	400	500
Price ..... each	12.00	17.00	25.00	35.00	45.00	55.00

Style	G			H		
Number	104	105	106	107	108	109
Height of Wheel ..... inches	42	48	52	42	48	52
Extreme Width ..... "	42	48	54	42	48	54
Weight, Bundled ..... pounds	155	175	200	160	190	230
Capacity, 1½-inch, 4-ply Rubber Hose .... feet	250	400	500	250	400	500
" 2 " 4 " " " .... "	200	300	400	200	300	400
" 2½ " 4 " " " .... "	150	250	300	150	250	300
" 1½ " Cotton Rubber-Lined " .... "	500	650	800	500	650	800
" 2 " " " " " .... "	350	500	600	350	500	600
" 2½ " " " " " .... "	250	400	500	250	400	500
Price ..... each	40.00	50.00	60.00	50.00	60.00	70.00

WIRT & KNOX HOSE REELS

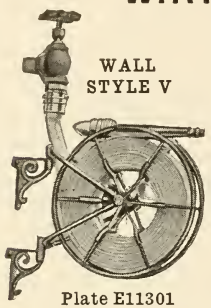


Plate E11301

ROTARY JOINT

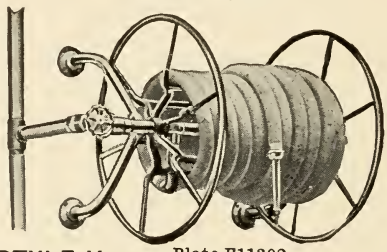


Plate E11302

WALL, STYLE V

Approved by the Associated Factory Mutual Fire Insurance Cos.

Are made of steel tubing, steel rod and malleable iron castings. Extremely strong and durable. An important feature is that tension axles are used, so that the reel may be adjusted to run tight or loose, as desired.

Number	Cap., Hose, Feet		Size of Hose Inches	Price Vermilion Finish, Each	Number	Cap., Hose, Feet		Size of Hose Inches	Price Vermilion Finish, Each
	Unlined Linen	Cotton Mill				Unlined Linen	Cotton Mill		
0	50	.....	1¼ or 1½	6.00	3	150	50	2	6.00
00	50	.....	2	6.00	4	150	50	2½	6.50
000	50	.....	2½	6.00	5½	200	...	1¼ or 1½	7.00
0½	75	.....	1¼ or 1½	6.00	6½	200	...	2	7.50
00½	75	.....	2	6.00	7½	200	...	2½	8.00
000½	75	.....	2½	6.00	5	300	100	1¼ or 1½	7.50
1	100	.....	1¼ or 1½	6.00	6	300	100	2	8.00
2½	100	.....	2	6.00	7	300	100	2½	8.50
3½	100	.....	2½	6.00	8	400	150	2½	11.50
2	150	50	1¼ or 1½	6.00	9	600	200	2½	15.00

Regular finish, red enamel. *Finished in gold or silver bronze without extra charge.*

List price covers brackets or pipe clamps up to and including 4-inch. 5-inch clamps, 35 cents; 6-inch, 50 cents; 7-inch, 65 cents; 8-inch, 75 cents per pair, net, extra. When ordering, specify whether wall brackets or pipe clamps are wanted; if the latter specify size

ROTARY JOINT

Tubular steel frame and reel with rotary joint to connect with standpipe, allowing flow of water through hose without unreeling when valve is turned on. Especially adapted to hose with heavy walls. Valves not included in prices given.

Size, In.	Capacity	Price, Ea.	Size, In	Capacity	Price, Ea.
¾	300 ft. ¾-in. Rubber Hose...	30.00	1½	200 ft. 1½ in. R. L. Mill Hose.	37.50
1	200 " 1 " " " ...	32.50	2	150 " 2 " " " " "	40.00
1¼	150 " 1¼ " " " ...	35.00	2½	100 " 2½ " " " " "	45.00

BRACKET, STYLE W

A very strong, stationary wall reel, adapted for carrying larger quantities of hose than would be practical on a swinging wall reel or rack. Finished in red enamel.

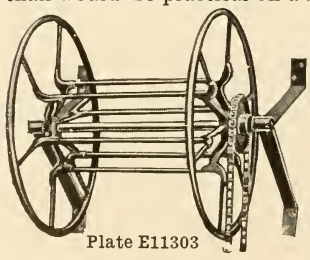


Plate E11303

Number	198	199	200	201	202
Diameter.....inches	21	26	30	30	30
Outside Length.... "	20	24	26	30	34
Cap, 1½-in. Cotton Rubber-Lined Hose.ft.	150	200	300	400	500
" 2 " " " " " "	100	150	200	300	400
" 2½ " " " " " "	50	100	150	250	350
Price, with Sprocket and Chain. each	14.00	16.00	18.00	20.00	22.00

Deduct 2.00 from list if wanted without sprocket or chain. Unlined linen requires about one half the space of cotton rubber-lined.

WIRT & KNOX HOSE RACKS

WIRT'S ROYAL RACK

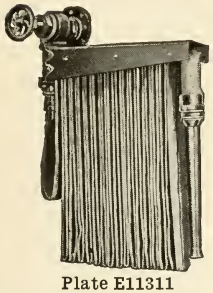


Plate E11311

Made of pressed steel, with malleable iron fittings and rustless pins. Pins drop instantly as hose is withdrawn but remain attached to the rack ready for use again. Pins cannot possibly corrode. The body of the rack forms a cover over the top folds of the hose, protecting it from the accumulation of dust and dirt. May be attached to wall, standpipe or nipple below valve.

Number	18	19
Price, Japanned Red, Gold or Aluminum Bronze..each	5.00	6.00
" Enameled White..... "	6.00	7.00
" Nickel-plated on Steel..... "	7.00	8.00
" Polished or Nickel-plated on Brass..... "	11.00	13.00
*Capacity, Unlined Linen Hose.....feet	25to75	100 to 150

Prices include wall brackets or pipe clamps, the latter up to and including 4-inch. 4½-inch clamps, 25 cents; 5-inch, 30 cents; 6-inch, 35 cents each, net, extra.

For racks to be attached to valve, nipples are furnished only when specified, at the following prices: Plain pipe nipples with iron pipe thread, without extra charge, when in same finish as racks. Nipples with special or hose thread, as follows: Cast iron nipples, 1½-inch, .30; 2-inch, .40; 2½-inch, .45 each, net, extra. Cast brass nipples furnished with brass racks without extra charge. *Specify size of hose.

WIRT'S HUMP RACK

Approved by the Associated Factory Mutual Fire Ins. Cos.

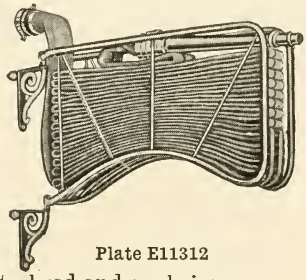


Plate E11312

Constructed with the bottom of the rack higher in the center than at the ends, thus taking the weight off the ends or folds of the hose and preventing the hose from breaking at these folds. The end or front of the rack is partially enclosed so that the hose cannot be pulled off in a tangled mass. Made of steel tubing, steel rod and malleable iron.

WIRT'S ANGLE IRON RACK—(Not Illustrated)

Approved by the Associated Factory Mutual Fire Ins. Cos.

Similar in construction to the Hump Rack, without the "hump" feature, and constructed of malleable iron, steel rod and angle iron.

Hump Rack No.	Angle Iron Rack No.	Capacity Feet	Size of Hose Inches	Kind of Hose	Price Each	Hump Rack No.	Angle Iron Rack No.	Capacity Feet	Size of Hose Inches	Kind of Hose	Price Each
A-0	70	50	1¼ or 1½	Unlined Linen	5.00	A-5	79	200	1¼ or 1½	Unlined Linen	7.50
A-0X	71	50	2		5.00	A-5X	80	200	2		7.50
A-00	72	50	2½		5.00	A-6	81	200	2½		8.00
A-1	73	100	1¼ or 1½		6.00	A-3	76	50	1¼ or 1½	Cotton Rubber-Lined Mill	7.00
A-1X	74	100	2		6.00	A-3X	77	50	2		7.00
A-2	75	100	2½		6.00	A-4	78	50	2½		7.00
A-3	76	150	1¼ or 1½		7.00	A-5	79	100	1¼ or 1½		7.50
A-3X	77	150	2		7.00	A-5X	80	100	2		7.50
A-4	78	150	2½		7.00	A-6	81	100	2½		8.00

Nos. A-0, A-0X, A-00, 70, 71 and 72 will be furnished to hold 75 feet of linen hose, at 50 cents additional list.

Regular finish, red enamel. Finished in gold or aluminum bronze without extra charge. Will be finished in white enamel at 50 cents each, net, and nickel or copper-plated at 2.00 each, net, add.

In ordering, give size, kind and length of hose. When ordering, specify whether wall brackets or pipe clamps are wanted; if the latter, specify size.

Pipe clamps, price, per pair: 5-inch, .35; 6-inch, .50; 7-inch, .65; 8-inch, .75 net, extra The list price of racks covers brackets or pipe clamps up to 4-inch. For larger sizes the list of pipe clamps will prevail.

BOWES' HOSE RACKS

STYLE E

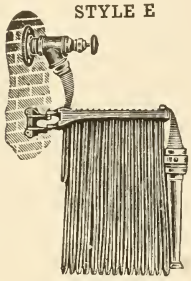


Plate E11321

STYLE F

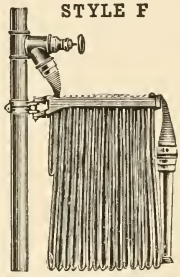


Plate E11322

STYLE G

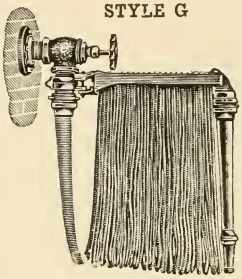


Plate E11323

The style shown above of Bowes' hose racks have a shield on each side to hide the pins and supporting arms. They represent a most practical and reliable pin rack, their distinctive advantage being that the pins or supporting rings do not fall to the floor when the hose is pulled from the rack as in the case of similar racks.

No.	Style	Kind of Material	Capacity Unlined Linen Hose Feet	Size Hose Inches	Price Each	
					Finished	Nickel Plated
31	E	Iron	50	1½	5.00	7.00
32	"	"	50	2	5.00	7.00
33	"	"	50	2½	5.00	7.00
34	"	"	100	1½	6.00	8.00
35	"	"	100	2	6.00	8.00
36	"	"	100	2½	6.00	8.00
131	"	Brass	50	1½	10.00	11.00
132	"	"	50	2	10.00	11.00
133	"	"	50	2½	10.00	11.00
134	"	"	100	1½	12.00	13.00
135	"	"	100	2	12.00	13.00
136	"	"	100	2½	12.00	13.00
41	F	Iron	50	1½	5.00	7.00
42	"	"	50	2	5.00	7.00
43	"	"	50	2½	5.00	7.00
44	"	"	100	1½	6.00	8.00
45	"	"	100	2	6.00	8.00
46	"	"	100	2½	6.00	8.00
141	"	Brass	50	1½	10.00	11.00
142	"	"	50	2	10.00	11.00
143	"	"	50	2½	10.00	11.00
144	"	"	100	1½	12.00	13.00
145	"	"	100	2	12.00	13.00
146	"	"	100	2½	12.00	13.00
51	G	Iron	50	1½	5.00	7.00
52	"	"	50	2	5.00	7.00
53	"	"	50	2½	5.00	7.00
54	"	"	100	1½	6.00	8.00
55	"	"	100	2	6.00	8.00
56	"	"	100	2½	6.00	8.00
151	"	Brass	50	1½	10.00	11.00
152	"	"	50	2	10.00	11.00
153	"	"	50	2½	10.00	11.00
154	"	"	100	1½	12.00	13.00
155	"	"	100	2	12.00	13.00
156	"	"	100	2½	12.00	13.00

In ordering state size of pipe to which rack is to be attached. All Bowes' racks are packed in individual wooden boxes.

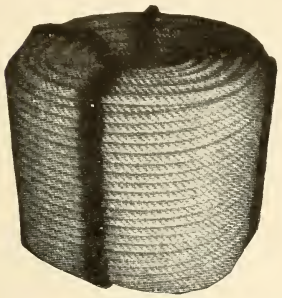


Plate E11331

ROPE

MANILA ROPE

Manila, sisal and jute rope weigh about alike. Tarred hemp cordage will weigh about one fourth more. The relative strength of manila to sisal is about as 7 is to 5.

APPROXIMATE WEIGHT AND STRENGTH

Diam. Inches	Circumference Inches	No. of Feet in 1 Lb.	Full Coils Length Feet	Full Coils Weight Pounds	Strength of New Manila Rope, Lbs.	Diam. Inches	Circumference Inches	No. of Feet in 1 Lb.	Full Coils Length Feet	Full Coils Weight Pounds	Strength of New Manila Rope, Lbs.
3/16	6-Thd. Fine	75	2280	30	500	1 1/4	3 3/4	2 1/6	1200	510	12500
1/4	6 " "	55	2600	50	620	1 3/8	4 1/4	1 9/10	1200	660	14000
5/16	9 " "	41	1870	55	1000	1 1/2	4 1/2	1 1/2	1200	775	17000
3/8	12 " "	26	1690	65	1275	1 5/8	5	1 1/5	1200	950	20000
7/16	1 1/4	19	1400	75	1875	1 3/4	5 1/2	1	1200	1150	25000
1/2	1 1/2	13 1/2	1200	92	2400	2	6	10 in.	1200	1376	30000
9/16	1 3/4	10	1200	130	3300	2 1/8	6 1/2	8 3/5 "	1200	1600	33000
5/8	2	7 1/2	1200	160	4000	2 1/4	7	7 2/5 "	1200	1850	37000
3/4	2 1/4	6	1200	200	4700	2 1/2	7 1/2	6 1/2 "	1200	2200	43000
13/16	2 1/2	5	1200	250	5600	2 5/8	8	5 2/3 "	1200	2550	50000
7/8	2 3/4	4	1200	290	6500	2 7/8	8 1/2	5 "	1200	2850	56000
1	3	3 1/3	1200	350	7500	3	9	4 1/2 "	1200	3150	62000
1 1/16	3 1/4	2 7/8	1200	400	8900	3 1/8	9 1/2	4 "	1200	3470	68000
1 1/8	3 1/2	2 1/2	1200	450	10500	3 3/8	10	3 5/8 "	1200	3850	75000

CORDAGE BASIS

MANILA	
Rope, 5/8-in. Diam. or 2-in. Cir., Tarred or Untarred	Basis
9/16, 1/2 and 7/16-in. Diam.	1/2c above
12-Thrd. (3/8-in. Diam.) and 15-Thrd. Fine, Tarred or Untarred	1c "
6 and 9-Thrd. (1/4 and 5/16-in. Diam.) Tarred or Untarred	1 1/2c "
6-Thrd. Fine (3/16-in. Diam.) Tarred or Untarred	2 c "
Net Rope, 15-Thrd. and Larger, " " "	1/2c "
" " 12 " Tarred or Untarred	1 c "
" " 6 and 9-Thrd., Tarred or Untarred	1 1/2c "
Cables (Oil Well Drilling and Sand Lines)	Special
Bolt Rope, Points, Best Coal Falls, Steamship Wheel Ropes and Mill Carriage Ropes, Fine and Selected Yarn, Whale Line	3c above
Transmission Rope	Special
Hay Rope, Hide Rope, Fish Twine, Spun Yarn and Bale Rope	1/2c above
Hay Rope, Hide Rope, Fish Twine, Spun Yarn and Bale Rope, Fine	1 c above
Hay Rope, Hide Rope, Fish Twine, Laid	1 c "
" " " " " " Fine Laid	1 1/2c "
Manila Lariat Rope, 4-Strand	5 c "

MANILA	
Manila Lariat Rope, 3-Strand	4c above
Special Yacht Rope and Yacht Lariat, 3 or 4-Strand	Special
Tom Horn Lariat	"
SISAL	
Rope 2.in. Cir., 5/8-in. Diam. and Larger	Basis
9/16, 1/2 and 7/16-in. Diam.	1/2c above
12-Thrd. (3/8-in. Diam.)	1 c "
6 and 9-Thrd. (1/4 and 5/16-in. Diam.)	1 1/2c "
3-Thrd. Laid (3/16-in. Diam.)	2 c "
Hay Rope, Hide Rope, Fish Twine, Spun Yarn and Bale Rope	1/2c above
Hay Rope, Hide Rope, Fish Twine, Spun Yarn and Bale Rope, Fine	1 c above
Hay Rope, Hide Rope and Fish Twine, Laid	1 c "
" " " " " " Fine Laid	1 1/2c "
Sisal Lariat Rope, 4-Strand	5 c "
" " " 3 "	4 c "
130-Thrd. Untarred Lath or Ring Yarn	Basis
110 and 130 Best Tarred Lath Yarn	Special
110 " 130 Anchor Tarred Lath Yarn	"
130 " XLCR Tarred Lath Yarn	"

Goods in ball, 1/4c per pound extra. Rope ordered without oil, 1c per pound extra
All 4-strand rope, 1c extra.

WOOD TACKLE BLOCKS

INSIDE IRON STRAPPED BLOCKS WITH IRON SHEAVES, LOOSE HOOKS

SINGLE

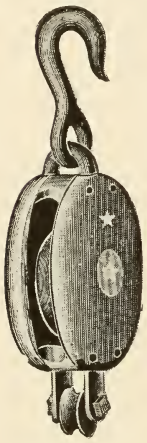


Plate E11341

DOUBLE

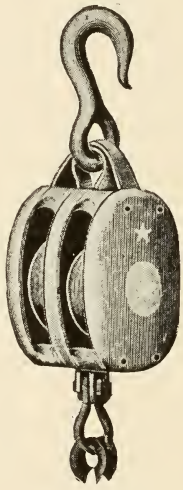


Plate E11342

TRIPLE

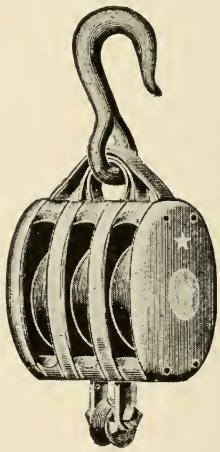


Plate E11343

We furnish beckets on all single, one half double and one third triple blocks, without charge. If a greater number are wanted, add for each additional becket five cents net for beckets in blocks 5 inches and under, and one cent per inch of shell (in length) for each additional becket in sizes larger.

Dimensions, Inches			Price Iron Bushed Each			Price Roller Bushed Each			Price Metaline Bushed, Each		
Sheaves	Rope	Shell	Single	Double	Triple	Single	Double	Triple	Single	Double	Triple
1¾x ½x⅜	⅜	3	.70	1.30	1.75	1.10	2.00	2.90	....	.....	.....
2 x ½x⅜	⅜	3½	.75	1.45	2.00	1.15	2.20	3.15	....	.....	.....
2¼x ⅝x⅜	½	4	.85	1.60	2.15	1.20	2.25	3.25	1.50	2.90	4.15
3 x ¾x⅜	⅝	5	.90	1.75	2.25	1.25	2.35	3.50	1.75	3.35	4.75
3½x1 x½	⅝–¾	6	1.10	2.00	2.90	1.50	2.85	4.40	2.20	4.00	5.80
4¼x1 x½	⅞	7	1.30	2.40	3.50	1.70	3.35	5.00	2.50	4.50	6.70
4¾x1⅛x⅝	1	8	1.65	2.85	4.25	2.25	4.15	6.00	3.25	5.70	8.50
5½x1⅛x⅝	1	9	1.85	3.40	4.75	2.50	4.70	7.25	3.70	6.75	10.00
6¼x1¼x⅝	1⅛	10	2.75	4.50	6.25	3.50	6.00	8.50	4.75	8.50	12.50
7¼x1¼x¾	1⅛	11	4.45	7.50	10.65	5.30	9.20	13.20	....	.....	.....
8 x1⅜x¾	1¼	12	4.45	7.50	10.65	5.30	9.20	13.20	6.75	12.50	18.50
9 x1½x¾	1¼	13	7.00	10.50	15.00	8.15	12.80	18.45	9.75	17.00	25.00
9½x1⅝x⅞	1⅜	14	7.00	10.50	15.00	8.15	12.80	18.45	9.75	17.00	25.00
10 x1⅝x⅞	1½	15	8.00	13.00	18.00	9.25	15.50	21.75	....	.....	.....
11 x1¾x⅞	1⅝	16	10.00	15.00	22.00	11.50	18.00	26.50	....	.....	.....

IMPROVED STEEL TACKLE BLOCKS

WITH LOOSE SIDE HOOKS

SINGLE

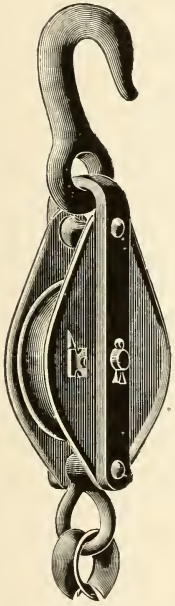


Plate E11351

DOUBLE

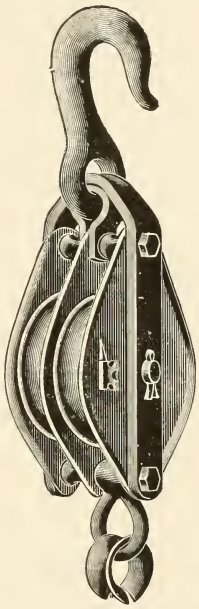


Plate E11352

TRIPLE

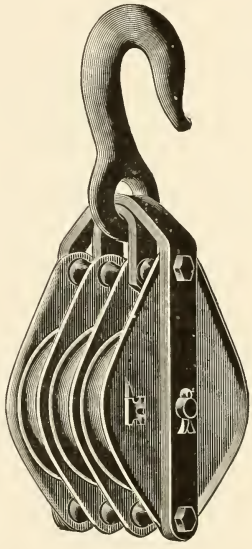


Plate E11353

Discount changes for sizes 16-inch and larger.

For Rope Diam. Inches	Diam. of Sheaves Inches	Length of Shell Inches	Price, Each								
			Iron Bushed			Improved Roller Bushed			Phosphor-bronze or Metaline Bushed. Self-Lubricating		
			Single	Double	Triple	Single	Double	Triple	Single	Double	Triple
1/2	2 1/4	4	.90	1.75	2.50	1.40	2.60	3.75	1.65	3.25	4.75
5/8	3	5	1.00	1.90	2.75	1.50	2.90	4.25	1.80	3.50	5.15
3/4	3 1/2	6	1.25	2.25	3.25	1.75	3.25	4.75	2.10	4.00	5.80
7/8	4 1/4	7	1.50	2.70	4.00	2.10	3.85	5.80	2.45	4.60	6.85
1	4 3/4	8	1.85	3.20	4.75	2.55	4.60	6.85	2.90	5.30	7.90
1 1/8	5 1/2	9	2.40	4.00	5.50	3.20	5.60	7.90	3.55	6.30	9.00
1 1/4	6 1/4	10	3.10	5.10	7.00	4.05	7.00	9.85	4.40	7.70	11.00
1 1/2	8	12	5.00	8.25	11.75	6.00	10.35	14.90	6.45	11.15	16.00
1 3/4	9 1/2	14	7.50	11.75	16.50	8.75	14.25	20.25	9.10	15.00	21.30
2	11	16	13.00	21.00	32.00	14.00	24.00	35.00	15.00	25.00	38.00
2 1/4	12	18	22.00	35.00	50.00	.....	.....	.....	25.00	41.00	59.00
2 1/2	13 1/2	20	30.00	50.00	65.00	.....	.....	.....	34.00	58.00	77.00

Sizes 9-inch and larger take same size rope as thick mortise wooden blocks.

Five-roll roller bushed blocks quoted upon application. Use the above improved roller bushed lists.

HOISTS

MOORE ANTI-FRICTION

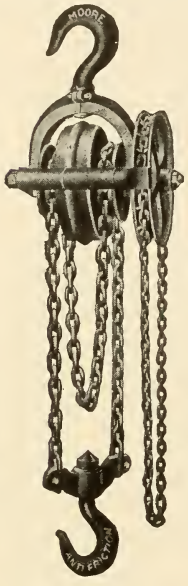


Plate E11361

STANDARD

Plate E11362

DIRECT DIFFERENTIAL

Plate E11363

MOORE ANTI-FRICTION—WITH AUTOMATIC BRAKE

Capacity ..... tons	½	1	1½	2	3	4	5
Height of Lift ..... feet	8	8	8	9	10	11	12
Shortest Distance between Hooks ..... inches	17⅜	21	21½	24	28	29	34½
Net Weight Complete with Chain ..... pounds	55	80	94	126	190	240	358
Price, Complete ..... each	**25.00**	**30.00**	**40.00**	**50.00**	**70.00**	**95.00**	**125.00**
" Extra Chain ... per ft. of lift	**1.30**	**1.38**	**1.46**	**1.54**	**1.70**	**1.90**	**2.10**

STANDARD SCREW CHAIN

Capacity ..... tons	½	1	1½	2	3
Height of Lift ..... feet	8	8	8	9	10
Shortest Distance between Hooks ..... inches	16	17	17	20	24
Net Weight Complete with Chain ..... pounds	56	71	81	99	157
Price, Complete ..... each	**25.00**	**30.00**	**40.00**	**50.00**	**75.00**
" Extra Chain ..... per foot of lift	**1.00**	**1.10**	**1.20**	**1.30**	**1.50**

DIRECT DIFFERENTIAL PULLEY BLOCK

Capacity ..... tons	¼	½	¾	1	1½	2	3
Length of Chain ..... feet	22	26	30	30	33	36	38
Height of Lift ..... "	6	7	8	8	8½	9	10
Shortest Distance between Hooks ..... inches	17	21	25	26	32	39	44
Net Weight Complete with Chain ..... pounds	22	30	35	50	81	125	180
Price ..... each	**18.00**	**21.00**	**25.00**	**28.00**	**36.00**	**45.00**	**60.00**
" Extra Chain ..... per foot	**.70**	**.70**	**.75**	**.75**	**.80**	**.85**	**1.00**

Allow four feet of chain for each additional foot of lift. Always specify "Direct" blocks when ordering this style.

JACK SCREWS

LOCOMOTIVE

Plate E11371

TEE TOP

Plate E11372

CAR BOX

Plate E11373

Capacity Tons	Diam. of Screw Inches	Height of Stand Inches	Height Over All Inches	Rise of Screw Inches	Price Each	Capacity Tons	Diam. of Screw Inches	Height of Stand Inches	Height Over All Inches	Rise of Screw Inches	Price Each
10	1¼	4	6½	2¼	2.90	*24	2¼	10	13¾	6¾	8.25
10	1¼	6	8½	4¼	3.10	*24	2¼	12	15¾	8¾	9.00
10	1¼	8	10½	6¼	3.40	*24	2¼	14	17¾	10¾	10.00
10	1¼	10	12½	8¼	3.80	*24	2¼	16	19¾	12¾	11.00
10	1¼	12	14½	10¼	4.20	24	2¼	18	21¾	14¾	12.00
10	1¼	14	16½	12¼	4.60	24	2¼	20	23¾	16¾	13.25
12	1½	4	6¾	1¾	3.25	24	2¼	22	25¾	18¾	14.50
*12	1½	5	7¾	2¾	3.50	24	2¼	24	27¾	20¾	15.75
*12	1½	6	8¾	3¾	3.75	†28	2½	6	10	2¼	7.75
*12	1½	8	10¾	5¾	4.25	*28	2½	6½	10½	2¾	8.00
*12	1½	10	12¾	7¾	4.75	*28	2½	8	12	4¼	8.75
*12	1½	12	14¾	9¾	5.25	*28	2½	10	14	6¼	9.75
12	1½	14	16¾	11¾	6.00	*28	2½	12	16	8¼	10.75
12	1½	16	18¾	13¾	6.75	*28	2½	14	18	10¼	12.00
*16	1¾	6	9	3½	4.50	*28	2½	16	20	12¼	13.25
*16	1¾	8	11	5½	5.00	28	2½	18	22	14¼	14.50
*16	1¾	10	13	7½	5.75	28	2½	20	24	16¼	15.75
*16	1¾	12	15	9½	6.25	28	2½	22	26	18¼	17.00
16	1¾	14	17	11½	6.75	28	2½	24	28	20¼	18.25
16	1¾	16	19	13½	7.50	28	2½	26	30	22¼	20.00
16	1¾	18	21	15½	8.50	28	2½	28	32	24¼	22.00
*20	2	5	8½	2	5.00	28	2½	30	34	26¼	24.00
*20	2	6	9½	3	5.25	28	2½	32	36	28¼	26.00
*20	2	8	11½	5	6.00	*36	3	8	13	3½	17.50
*20	2	10	13½	7	6.75	36	3	14	19	9½	19.50
*20	2	12	15½	9	7.50	36	3	16	21	11½	20.75
*20	2	14	17½	11	8.25	36	3	18	23	13½	22.00
20	2	16	19½	13	9.25	36	3	20	25	15½	23.25
20	2	18	21½	15	10.25	36	3	22	27	17½	24.50
20	2	20	23½	17	11.50	36	3	24	29	19½	25.75
20	2	22	25½	19	12.50	36	3	26	31	21½	27.00
20	2	24	27½	21	13.50	36	3	28	33	23½	28.50
*24	2¼	6	9¾	2¾	7.00	36	3	30	35	25½	30.00
*24	2¼	8	11¾	4¾	7.50	36	3	36	41	31½	36.00

Levers will be sent only when ordered, and will be charged for extra. Tee top jack screws furnished on same list as shown. Car box jack screws, furnished in sizes marked * at 50 cents advance on list, the exception being the 12 and 16-ton are ¼ inch; 20, 24, and 28-ton, ½-inch; 36-ton, 1 inch higher over all. †Car box jack screw 8.00 list.

CAST IRON PIPE

STANDARD PIPE

Plate E11381

STANDARD THICKNESS AND WEIGHTS OF CAST IRON PIPE BELL AND SPIGOT PIPE. TURNED AND BORED PIPE

All lengths to lay 12 feet. All weights are approximate; those per foot include allowance for bell. All pipe is tested by water pressure. Turned and bored pipe made to order only.

Nominal Inside Diameter Inches	Class A Gas 100-foot Head 43 Pounds Pressure		Class B Standard 200-foot Head 86 Pounds Pressure		Class C Medium Heavy 300-foot Head 130 Pounds Pressure		Class D Extra Heavy 400-foot Head 173 Pounds Pressure	
	Thickness Inches	Weight per Foot Pounds	Thickness Inches	Weight per Foot Pounds	Thickness Inches	Weight per Foot Pounds	Thickness Inches	Weight per Foot Pounds
3	....	.....	.50	18.	.53	19.	....	.....
4	.42	20.	.45	21.7	.48	23.3	.52	25.
6	.44	30.8	.48	33.3	.51	35.8	.55	38.3
8	.46	42.9	.51	47.5	.56	52.1	.60	55.8
10	.50	57.1	.57	63.8	.62	70.8	.68	76.7
12	.54	72.5	.62	82.1	.68	91.7	.75	100.
14	.57	89.6	.66	102.5	.74	116.7	.82	129.2
16	.60	108.3	.70	125.	.80	143.8	.89	158.3
18	.64	129.2	.75	150.	.87	175.	.96	191.7
20	.67	150.	.80	175.	.92	208.3	1.03	229.2
24	.76	204.2	.89	233.3	1.04	279.2	1.16	306.7
30	.88	291.7	1.03	333.3	1.20	400.	1.37	450.
36	.99	391.7	1.15	454 2	1.36	545.8	1.58	625.
42	1.10	512.5	1.28	591.7	1.54	716.7	1.78	825.
48	1.26	666.7	1.42	750.	1.71	908.3	1.96	1050.
54	1.35	800.	1.55	933.3	1.90	1141.7	2.23	1341.7
60	1.39	916.7	1.67	1104.2	2.	1341.7	2.38	1583.3
72	1.62	1283.4	1.95	1545.8	2.39	1904.2	....	.....
84	1.72	1633.4	2.22	2104.2	....	.....	....	.....

FLANGED WATER PIPE

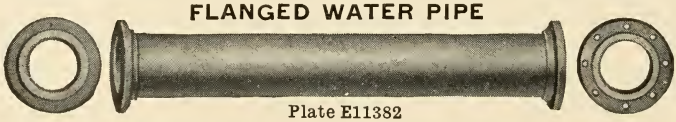


Plate E11382

Flanged Cast Iron Pipe, sizes 3 to 48 inches, same thickness as Standard Pipe. Thickness of flange equals approximately 1½ times thickness of pipe, plus ⅛ inch. Pipe made in 12-foot lengths and faced ⅛ inch short for gaskets.

APPROXIMATE WEIGHTS OF LEAD AND HEMP REQUIRED FOR JOINTS

Pipe ..... inches	4	6	8	10	12	14	16	18	20
Lead, 2 inches Thick..... pounds	7.5	10.25	13.25	16	19	22	30	33.8	37
Hemp..... "	.21	.31	.44	.53	.61	.81	.94	1	1.25
Pipe ..... inches	24	30	36	42	48	54	60	72	84
Lead, 2 inches Thick..... pounds	44	54.25	64.75	75.25	85.5	97.6	108.30	128	147
Hemp..... "	1.50	2.06	3	3.62	4.37	6.25	8.25	12.5	15

Inquiries and orders should clearly indicate the approximate number of lengths or feet of pipe of each size and class required. Give the desired delivery point and time of shipment, with any particulars as to sizes required first, the service intended, etc.; this will facilitate prompt attention and avoid delays.

SPECIALS FOR CAST IRON PIPE

QUARTER BEND

Plate E11391

EIGHTH BEND

Plate E11392

TEE

Plate E11393

CROSS

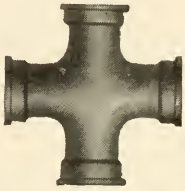


Plate E11394

QUARTER BENDS, 90°

Size..... inches	4	6	8	10	12	14	16	18	20	24	30	36
Weight..... pounds	82	130	200	278	366	504	750	888	1070	1656	2836	4820

EIGHTH BENDS, 45°

Size..... inches	4	6	8	10	12	14	16	18	20	24	30	36
Weight..... pounds	66	105	150	202	265	442	558	663	964	1515	2291	4012

SIXTEENTH BENDS, 22½°

Size..... inches	4	6	8	10	12	14	16	18	20	24	30	36
Weight..... pounds	66	105	150	202	265	382	484	574	858	1372	2080	4012

TEES

Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds
4x4x4	128	10x10x10	394	12x12x 8	474	20x20x20	1438
6x6x6	200	10x10x 8	371	12x12x 6	458	24x24x24	2113
6x6x4	183	10x10x 6	352	12x12x 4	445	30x30x30	3660
8x8x8	294	10x10x 4	338	14x14x14	724	36x36x36	5567
8x8x6	270	12x12x12	512	16x16x16	969	48x48x48	....
8x8x4	255	12x12x10	491	16x16x12	861	.....	....

CROSSES

Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds
4x4x4x4	166	10x10x10x10	493	12x12x 8x 8	545	20x20x20x20	1828
6x6x6x6	257	10x10x 8x 8	443	12x12x 6x 6	512	24x24x24x24	2694
6x6x4x4	221	10x10x 6x 6	406	12x12x 4x 4	486	30x30x30x30	4609
8x8x8x8	372	10x10x 4x 4	377	14x14x14x14	963	36x36x36x36	6857
8x8x6x6	325	12x12x12x12	623	16x16x16x16	1259	48x48x48x48	....
8x8x4x4	294	12x12x10x10	577	18x18x18x18	1454	.....	....

SLEEVE

Plate E11395

PLUG

Plate E11396

CAP

Plate E11397

Size..... inches	4	6	8	10	12	14	16	18	20	24	30	36	48
Weight, Sleeves..... pounds	61	87	119	176	223	280	443	518	625	821	1262	1772	2879
" Plugs..... "	8	14	24	38	50	65	96	121	156	472	723	1050	2047
" Caps..... "	26	40	59	81	104	149	198	242	308	442	704	1084	2341

SPECIALS FOR CAST IRON PIPE

Y BRANCH

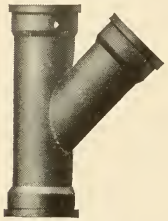


Plate E11401

REDUCER

Plate E11402

INCREASER

Plate E11403

Y Branches		Reducers						Increasers	
Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds
4 x 4	103	6 x 4	97	14 x 10	320	20 x 16	711	4 x 6	104
6 x 6	181	8 x 6	143	14 x 8	288	20 x 14	638	4 x 8	132
8 x 8	291	8 x 4	119	14 x 6	256	20 x 12	576	4 x 10	162
10 x 10	434	10 x 8	198	16 x 14	461	24 x 20	987	6 x 8	150
12 x 12	632	10 x 6	169	16 x 12	405	24 x 18	901	6 x 10	180
14 x 14	985	10 x 4	146	16 x 10	364	24 x 16	838	6 x 12	218
16 x 16	1413	12 x 10	261	18 x 16	569	24 x 14	764	8 x 10	201
18 x 18	1737	12 x 8	231	18 x 14	502	30 x 24	1398	8 x 12	240
20 x 20	2199	12 x 6	202	18 x 12	446	36 x 30	2264	10 x 12	267
24 x 24	3599	12 x 4	179	18 x 10	405	.....	....	12 x 14	378
.....	....	14 x 12	360	20 x 18	776	.....	....	.....	....

SPLIT TEE

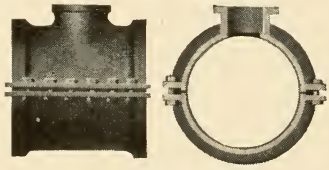


Plate E11404

SPLIT SLEEVE

Plate E11405

SPLIT TEES, WITH ANY SIZE OUTLET

Size...inches	3	4	6	8	10	12	14	16	18	20	24	30	36
Price ...each	6.50	8.00	10.00	12.50	17.50	20.00	22.50	27.50	35.00	40.00	50.00	60.00	70.00

SPLIT SLEEVES

Size ...inches	3	4	6	8	10	12	14	16	18	20	24	30	36
Price....each	3.00	3.00	5.25	8.25	11.50	13.50	20.00	21.00	28.50	38.50	40.00	45.00	55.00

FLANGE AND SPIGOT

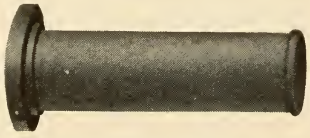


Plate E11406

FLANGE AND BELL

Plate E11407

FLANGE

Plate E11408

Size .....inches	3	4	6	8	10	12	14	16	18	20	24
Length, Flange and Spigot....inches	16	16	16	16	18	18	18	20	20	20	24
Laying Length, Flange and Bell "	4	4	4	4	6	6	6	6	6	6	6
Price, Flange and Spigot .....each	1.90	2.50	3.75	5.95	9.00	11.85	14.70	20.00	22.80	27.50	43.00
" Flange and Bell.. "	2.20	2.80	4.05	6.00	8.75	11.25	14.40	18.00	19.70	23.90	40.00
" Flange, Faced and Drilled "	2.25	3.00	4.00	6.50	9.25	12.50	16.00	26.00	31.00	34.00	46.00

STEEL FLAG STAFFS

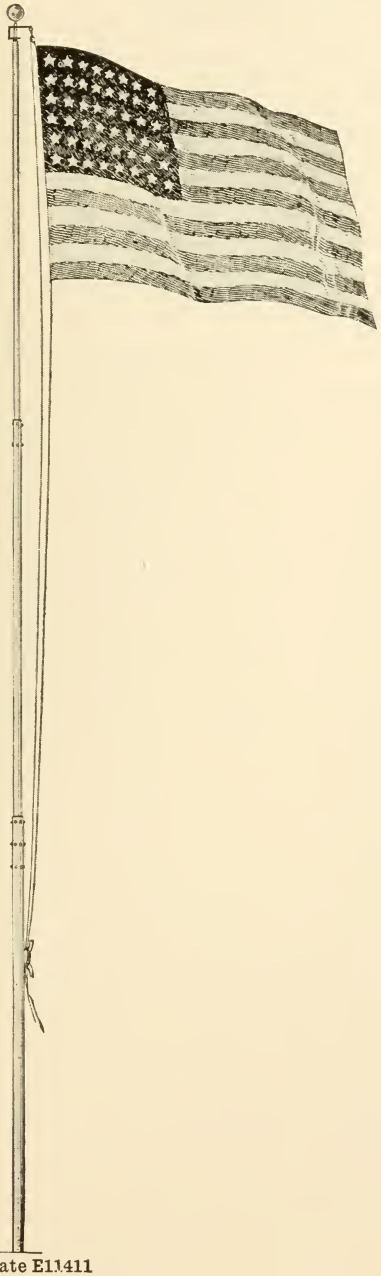


Plate E11411

FOR PARKS, SCHOOLS, COLLEGES, COUNTRY CLUBS, PLAY GROUNDS, PUBLIC BUILDINGS, PRIVATE BUILDINGS, ETC.

Galvanized Steel Flag Staff fitted with Steel Gavel and Steel Cord. To set in Cement or on Roofs. Constructed of Galvanized Steel Pipe of different dimensions. Joints telescoped, caulked and riveted. Revolving Swivel at top supports a Gilded Ball.

	Approx. Weight Complete Pounds	Price Each
Staff, 20 feet Over All.....	260	**70.00**
" 25 " " "	290	**80.00**
" 30 " " "	384	**90.00**
" 35 " " "	400	**100.00**
" 40 " " "	483	**115.00**
" 45 " " "	533	**125.00**
" 50 " " "	663	**145.00**
" 55 " " "	700	**150.00**
" 60 " " "	758	**160.00**
" 65 " " "	820	**170.00**
" 70 " " "	957	**190.00**
" 75 " " "	1100	**200.00**
" 80 " " "	1182	**220.00**
" 90 " " "	1669	**290.00**
" 100 " " "	2000	**350.00**

Shipments are made in sections not to exceed 36 feet in length.

STANDARD STEAM, GAS AND WATER PIPE

BLACK AND GALVANIZED

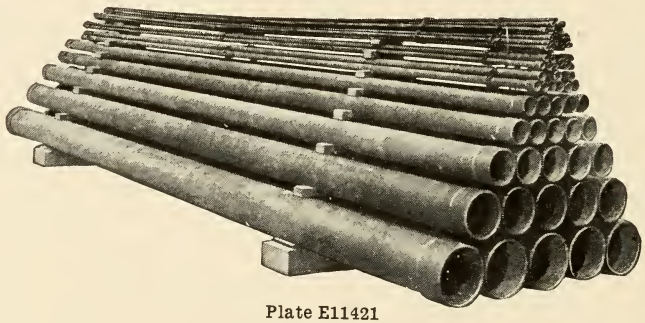


Plate E11421

As Adopted January 1, 1913

All Weights and Dimensions are Nominal

Size Inches	Price per Foot	Diameter Inches		Thickness Inches	Weight, per Foot Pounds		Number of Threads per Inch
		External	Internal		Plain Ends	Threaded and Coupled	
⅛	.05½	.405	.269	.068	.244	.245	27
¼	.06	.540	.364	.088	.424	.425	18
⅜	.06	.675	.493	.091	.567	.568	18
½	.08½	.840	.622	.109	.850	.852	14
¾	.11½	1.050	.824	.113	1.130	1.134	14
1	.17	1.315	1.049	.133	1.678	1.684	11½
1¼	.23	1.660	1.380	.140	2.272	2.281	11½
1½	.27½	1.900	1.610	.145	2.717	2.731	11½
2	.37	2.375	2.067	.154	3.652	3.678	11½
2½	.58½	2.875	2.469	.203	5.793	5.819	8
3	.76½	3.500	3.068	.216	7.575	7.616	8
3½	.92	4.	3.548	.226	9.109	9.202	8
4	1.09	4.500	4.026	.237	10.790	10.889	8
4½	1.27	5.	4.506	.247	12.538	12.642	8
5	1.48	5.563	5.047	.258	14.617	14.810	8
6	1.92	6.625	6.065	.280	18.974	19.185	8
7	2.38	7.625	7.023	.301	23.544	23.769	8
8	2.50	8.625	8.071	.277	24.696	25.	8
8	2.88	8.625	7.981	.322	28.554	28.809	8
9	3.45	9.625	8.941	.342	33.907	34.188	8
10	3.20	10.750	10.192	.279	31.201	32.	8
10	3.50	10.750	10.136	.307	34.240	35.	8
10	4.12	10.750	10.020	.365	40.483	41.132	8
11	4.63	11.750	11.	.375	45.557	46.247	8
12	4.50	12.750	12.090	.330	43.773	45.	8
12	5.07	12.750	12.	.375	49.562	50.706	8
13	5.60	14.	13.250	.375	54.568	55.824	8
14	6.10	15.	14.250	.375	58.573	60.375	8
15	6.50	16.	15.250	.375	62.579	64.500	8

The permissible variation in weight is 5 per cent above and 5 per cent below.

Furnished with threads and coupling and in random lengths, unless otherwise ordered.

For cut lengths, an extra charge will be made above random lengths.

For pipe smoothed on the inside, known as reamed and drifted, an extra charge will be made above standard pipe.

For galvanized or coated pipe, an extra charge will be made above black.

STEAM, GAS AND WATER PIPE

BLACK AND GALVANIZED

All Weights and Dimensions are Nominal
Adopted January 1, 1913

EXTRA STRONG

Size Inches	Price per Foot	Diameter, Inches		Thickness Inches	Weight, per Foot Plain Ends Pounds
		External	Internal		
⅛	.12	.405	.215	.095	.314
¼	.07½	.540	.302	.119	.535
⅜	.07½	.675	.423	.126	.738
½	.11	.840	.546	.147	1.087
¾	.15	1.050	.742	.154	1.473
1	.22	1.315	.957	.179	2.171
1¼	.30	1.660	1.278	.191	2.996
1½	.36½	1.900	1.500	.200	3.631
2	.50½	2.375	1.939	.218	5.022
2½	.77	2.875	2.323	.276	7.661
3	1.03	3.500	2.900	.300	10.252
3½	1.25	4.	3.364	.318	12.505
4	1.50	4.500	3.826	.337	14.983
4½	1.80	5.	4.290	.355	17.611
5	2.08	5.563	4.813	.375	20.778
6	2.86	6.625	5.761	.432	28.573
7	3.81	7.625	6.625	.500	38.048
8	4.34	8.625	7.625	.500	43.388
9	4.90	9.625	8.625	.500	48.728
10	5.48	10.750	9.750	.500	54.735
11	6.10	11.750	10.750	.500	60.075
12	6.55	12.750	11.750	.500	65.415

The permissible variation in weight is 5 per cent above and 5 per cent below.

DOUBLE EXTRA STRONG

Size Inches	Price per Foot	Diameter, Inches		Thickness Inches	Weight, per Foot Plain Ends Pounds
		External	Internal		
½	.32	.840	.252	.294	1.714
¾	.35	1.050	.434	.308	2.440
1	.37	1.315	.599	.358	3.659
1¼	.52½	1.660	.896	.382	5.214
1½	.65	1.900	1.100	.400	6.408
2	.91	2.375	1.503	.436	9.029
2½	1.37	2.875	1.771	.552	13.695
3	1.86	3.500	2.300	.600	18.583
3½	2.30	4.	2.728	.636	22.850
4	2.76	4.500	3.152	.674	27.541
4½	3.26	5.	3.580	.710	32.530
5	3.86	5.563	4.063	.750	38.552
6	5.32	6.625	4.897	.864	53.160
7	6.35	7.625	5.875	.875	63.079
8	7.25	8.625	6.875	.875	72.424

The permissible variation in weight is 10 per cent above and 10 per cent below.

The following notes apply to both tables:

Furnished with plain ends and in random lengths, unless otherwise ordered.

Random length of extra strong and double extra strong pipe is considered to be 12 feet to 22 feet, we to have the privilege, however, of supplying not exceeding 5 per cent of total order in lengths from 6 to 12 feet.

For pipe fitted with threads and couplings; for cut lengths, or galvanized or coated pipe, an extra charge will be made.

LARGE O. D. PIPE

PLAIN ENDS

PRICE LIST

Revised and Adopted January 1, 1913
All Weights and Dimensions are Nominal

Outside Diam. Inches	Price, per Foot — Thickness, Inches											
	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1	1 1/8
14	3.68	4.57	5.46	6.34	7.21	8.08	8.93	9.78	10.62	12.27	13.89	15.47
15	3.94	4.91	5.86	6.81	7.75	8.68	9.60	10.51	11.42	13.20	14.96	16.68
16	4.21	5.24	6.26	7.28	8.28	9.28	10.27	11.25	12.22	14.14	16.03	17.88
17	4.48	5.57	6.66	7.74	8.82	9.88	10.94	11.98	13.02	15.07	17.09	19.08
18	4.74	5.91	7.06	8.21	9.35	10.48	11.60	12.72	13.82	16.01	18.16	20.28
20	....	6.58	7.86	9.15	10.42	11.68	12.94	14.19	15.42	17.88	20.30	22.68
21	....	6.91	8.27	9.61	10.95	12.28	13.61	14.92	16.23	.....	.....	.....
22	....	7.24	8.67	10.08	11.49	12.88	14.27	15.65	17.03	.....	.....	.....
24	....	....	9.47	11.01	12.55	14.09	15.61	17.12	18.63	.....	.....	.....
26	....	....	10.27	11.95	13.62	15.29	16.94	18.59	20.23	.....	.....	.....
28	....	....	.....	12.88	14.69	16.49	18.28	20.06	21.83	.....	.....	.....
30	....	....	.....	13.82	15.76	17.69	19.61	21.53	23.43	.....	.....	.....

ESTIMATED WEIGHTS

The Permissible Variation in Weight is 5 Per Cent Above and 5 Per Cent Below

Outside Diam. Inches	Weight, Pounds, per Foot — Thickness, Inches					
	1/4	5/16	3/8	7/16	1/2	9/16
14	36.713	45.682	54.568	63.371	72.091	80.726
15	39.383	49.020	58.573	68.044	77.431	86.734
16	42.053	52.357	62.579	72.716	82.771	92.742
17	44.723	55.695	66.584	77.389	88.111	98.749
18	47.393	59.032	70.589	82.061	93.451	104.757
20	.....	65.708	78.599	91.407	104.131	116.772
21	.....	69.045	82.604	96.079	109.471	122.780
22	.....	72.383	86.609	100.752	114.811	128.787
24	.....	.....	94.619	110.097	125.491	140.802
26	.....	.....	102.629	119.442	136.172	152.818
28	.....	.....	.....	128.787	146.852	164.833
30	.....	.....	.....	138.132	157.532	176.848

Outside Diam. Inches	Weight, Pounds, per Foot — Thickness, Inches					
	5/8	11/16	3/4	7/8	1	1 1/8
14	89.279	97.748	106.134	122.654	138.842	154.695
15	95.954	105.091	114.144	132.	149.522	166.710
16	102.629	112.433	122.154	141.345	160.202	178.725
17	109.304	119.776	130.164	150.690	170.882	190.740
18	115.979	127.188	138.174	160.035	181.562	202.756
20	129.330	141.804	154.194	178.725	202.923	226.786
21	136.005	149.146	162.204	.....	.....	.....
22	142.680	156.489	170.215	.....	.....	.....
24	156.030	171.174	186.235	.....	.....	.....
26	169.380	185.859	202.255	.....	.....	.....
28	182.730	200.545	218.275	.....	.....	.....
30	196.081	215.230	234.296	.....	.....	.....

This pipe will be shipped in random lengths, plain ends, unless otherwise ordered. For cut lengths an extra charge above random will be made. For threaded pipe an extra charge above plain end will be made.

DRIVE PIPE, LINE PIPE AND TUBING

Adopted January 1, 1913. All Weights and Dimensions are Nominal
The Permissible Variation in Weight is 5 Per Cent Above and 5 Per Cent Below

LINE AND DRIVE PIPE

Size Inches	Diameters, Inches		Thickness Inches	Weight, per Foot, Pounds			Threads per Inch	Price, per Foot	
	External	Internal		Plain Ends	Threaded and Coupled Line Pipe	Threaded and Coupled Drive Pipe		†Line Pipe	Drive Pipe
1/8	.405	.269	.068	.244	.246	.....	27	.06	*....
1/4	.540	.364	.088	.424	.426	.....	18	.06½	*....
3/8	.675	.493	.091	.567	.571	.....	18	.06½	*....
1/2	.840	.622	.109	.850	.856	.....	14	.09	*....
3/4	1.050	.824	.113	1.130	1.138	.....	14	.12	*....
1	1.315	1.049	.133	1.678	1.688	.....	11½	.17½	*....
1¼	1.660	1.380	.140	2.272	2.300	.....	11½	.23½	*....
1½	1.900	1.610	.145	2.717	2.748	.....	11½	.28	*....
2	2.375	2.067	.154	3.652	3.716	3.730	11½	.37½	....
2½	2.875	2.469	.203	5.793	5.881	5.906	8	.59	....
3	3.500	3.068	.216	7.575	7.675	7.705	8	.77	....
3½	4.000	3.548	.226	9.109	9.261	9.294	8	.93	....
4	4.500	4.026	.237	10.790	10.980	10.995	8	1.10	....
4½	5.000	4.506	.247	12.538	12.742	12.758	8	1.28	....
5	5.563	5.047	.258	14.617	14.966	14.989	8	1.50	....
6	6.625	6.065	.280	18.974	19.367	19.408	8	1.94	....
7	7.625	7.023	.301	23.544	23.975	24.021	8	2.40	....
8	8.625	8.071	.277	24.696	25.414	25.495	8	2.54	....
8	8.625	7.981	.322	28.554	29.213	29.303	8	2.92	....
8	8.625	7.917	.354	31.270	.....	32.334	8	*....	....
9	9.625	8.941	.342	33.907	34.612	34.711	8	3.47	....
10	10.750	10.192	.279	31.201	32.515	32.631	8	3.25	....
10	10.750	10.136	.307	34.240	35.504	35.628	8	3.55	....
10	10.750	10.020	.365	40.483	41.644	41.785	8	4.17	....
11	11.750	11.000	.375	45.557	46.805	46.953	8	4.68	....
12	12.750	12.090	.330	43.773	45.217	45.358	8	4.55	....
12	12.750	12.000	.375	49.562	50.916	51.067	8	5.12	....
13	14.000	13.250	.375	54.568	56.649	56.849	8	5.68	....
14	15.000	14.250	.375	58.573	60.802	61.005	8	6.18	....
15	16.000	15.250	.375	62.579	64.955	65.161	8	6.60	....
17OD	17.000	16.214	.393	69.704	.....	73.000	8	*....	....
18OD	18.000	17.182	.409	76.840	.....	81.000	8	*....	....
20OD	20.000	19.182	.409	85.577	.....	90.000	8	*....	....

*Not made. †An extra charge will be made for cut lengths or galvanized, or coated pipe. Furnished with threads and couplings and all random lengths, unless otherwise ordered.

FLUSH JOINT TUBING

Size Inches	Diameters, Inches		Thickness Inches	Weight Plain Ends per Ft., Lbs.	Threads per Inch	Length of Joint Inches
	External	Internal				
3	3.500	3.068	.216	7.575	14	1¾
3½	4.000	3.548	.226	9.109	14	1¾
4	4.500	4.026	.237	10.790	11½	1¾
4½	5.000	4.506	.247	12.538	11½	1¾
5	5.563	5.047	.258	14.617	11½	2
6	6.625	6.065	.280	18.974	11½	2
7	7.625	7.023	.301	23.544	11½	2
8	8.625	7.981	.322	28.554	10	2
9	9.625	8.941	.342	33.907	10	2
10	10.750	10.020	.365	40.483	10	2¼
12	12.750	12.000	.375	49.562	10	2¼

Prices on application.

SPECIAL PIPE CUT TO ORDER

DIAGRAM SHOWING SCREWED VALVE AND FITTINGS

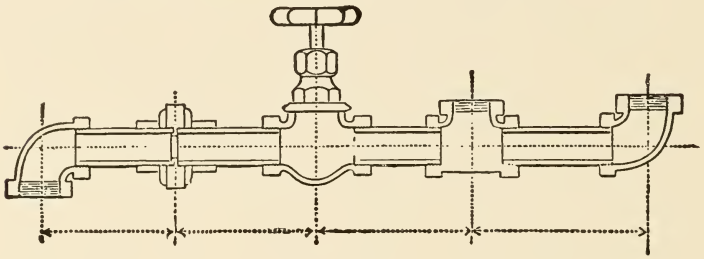


Plate E11461

DIAGRAM SHOWING FLANGED VALVE AND FITTINGS

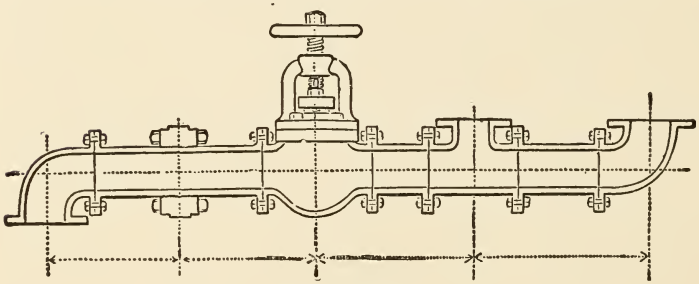


Plate E11462

We are equipped with the most improved facilities for cutting, threading and fitting all sizes of pipe to sketch.

In laying out work of this kind great care should be taken in making sketches. All measurements should be given center to center, as shown in above diagrams. It is also necessary to know for what purpose the pipe is to be used and pressure required to stand.

CUTTING STANDARD PIPE THREADS

Size..... inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Price..... each	.05	.05	.05	.05	.05	.06	.07	.08	.10	.15
Size..... inches	3	3 1/2	4	4 1/2	5	6	7	8	9	10
Price..... each	.20	.25	.35	.45	.55	.70	.85	1.00	1.25	1.50
Size..... inches	12	14	15	16	18	20	22	24	....	....
Price..... each	2.50	3.50	3.50	5.00	8.00	10.00	12.50	15.00	....	....

LOCKNUT THREADS

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price..... each	.10	.10	.10	.10	.12	.14	.16	.20	.30	.40	.50	.70

LOCKNUT NIPPLES

Made to Order and Charged as Cut Pipe, Threads Extra

PIPE BENDS

MADE FROM LAP WELDED STEEL PIPE

QUARTER BEND

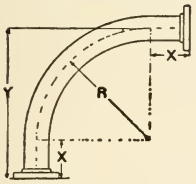


Plate E11471

U BEND

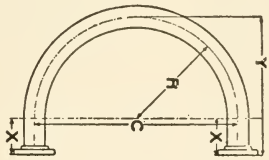


Plate E11472

45° BEND

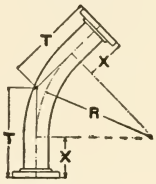


Plate E11473

EXPANSION U BEND

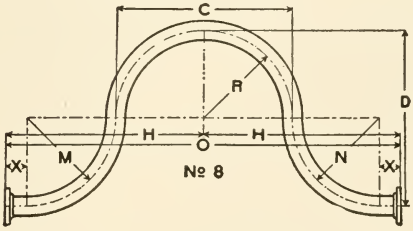


Plate E11474

SINGLE OFFSET U BEND

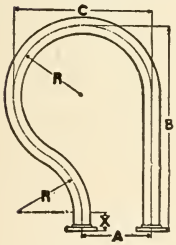


Plate E11475

CROSS-OVER

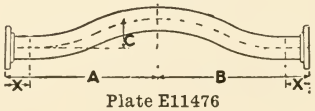


Plate E11476

DOUBLE OFFSET U BEND

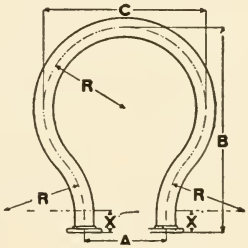


Plate E11477

We are prepared to bend large pipe in any desired form within the following limits:

The radius of any bend should not be less than five diameters of the pipe, and a larger radius is much preferable. The length "X" of straight pipe at each end of bend should be not less than as follows:

2½-inch Pipe X = 4 inches.
3 -inch Pipe X = 4 inches.
3½-inch Pipe X = 5 inches.
4 -inch Pipe X = 5 inches.
4½-inch Pipe X = 6 inches.
5 -inch Pipe X = 6 inches.
6 -inch Pipe X = 7 inches.
7 -inch Pipe X = 8 inches.
8 -inch Pipe X = 9 inches.
9-inch Pipe X = 11 inches.
10-inch Pipe X = 12 inches.
12-inch Pipe X = 14 inches.
14-inch Pipe X = 16 inches.
15-inch Pipe X = 16 inches.
16-inch Pipe X = 18 inches.
18-inch Pipe X = 18 inches.
20-inch Pipe X = 18 inches.
22-inch Pipe X = 18 inches.
24-inch Pipe X = 18 inches.

PIPE COILS

WALL COIL WITH MANIFOLD

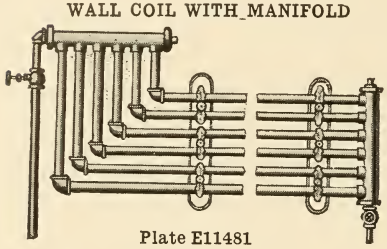


Plate E11481

WALL COIL WITH RETURN BENDS

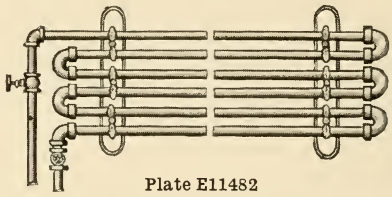


Plate E11482

BOX COIL

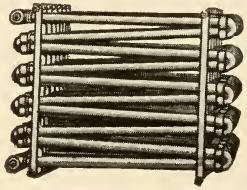


Plate E11483

WROUGHT IRON PIPE HEADER

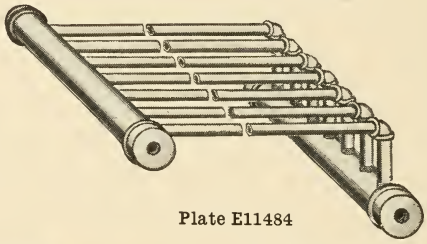


Plate E11484

HEATER COIL

Plate E11485

HEATER COIL

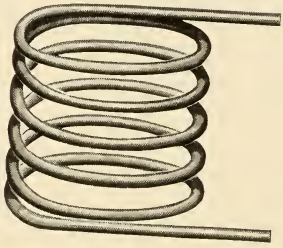


Plate E11486

HEATER COIL

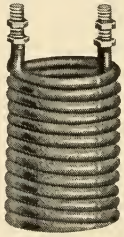


Plate E11487

KETTLE COIL

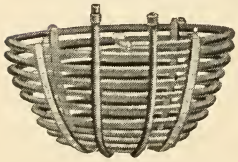


Plate E11488

FLAT COIL

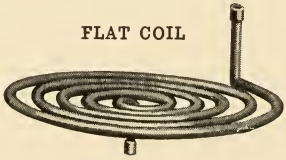


Plate E11489

TUYERE COIL

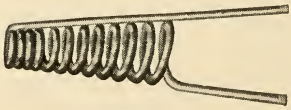


Plate E114810

TANK COIL

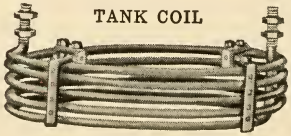


Plate E114811

Prices and full information on application.

LAP WELDED CASING

FOR WATER, WELL AND IRRIGATION PURPOSES

SCREW AND SOCKET JOINT

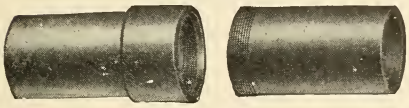


Plate E11491

INSERTED JOINT

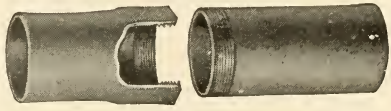


Plate E11492

Adopted January 1, 1913

All Weights and Dimensions are Nominal

Size Inches	Price per Foot	Diameter, Inches		Thickness Inches	Weight per Foot Plain Ends Pounds	Number of Threads per Inch
		External	Internal			
2	.33	2.250	2.050	.100	2.296	14
2¼	.33	2.500	2.284	.108	2.759	14
2½	.33	2.750	2.524	.113	3.182	14
2¾	.40	3.	2.768	.116	3.572	14
3	.41	3.250	3.010	.120	4.011	14
3¼	.46	3.500	3.250	.125	4.505	14
3½	.51	3.750	3.492	.129	4.988	14
3¾	.56½	4.	3.732	.134	5.532	14
4	.62	4.250	3.974	.138	6.060	14
4¼	.68½	4.500	4.216	.142	6.609	14
4½	.74	4.750	4.460	.145	7.131	14
4¾	.81	5.	4.696	.152	7.870	14
5	.85	5.250	4.944	.153	8.328	14
5 3/16	.90	5.500	5.192	.154	8.792	14
5⅝	1.05	6.	5.672	.164	10.222	14
6¼	1.20	6.625	6.287	.169	11.652	14
6⅝	1.35	7.	6.652	.174	12.685	14
7¼	1.48	7.625	7.263	.181	14.390	14
7⅝	1.60	8.	7.628	.186	15.522	11½
8¼	1.75	8.625	8.249	.188	16.940	11½
8⅝	1.90	9.	8.608	.196	18.429	11½
9⅝	2.28	10.	9.582	.209	21.855	11½
10⅝	2.68	11.	10.552	.224	25.780	11½
11⅝	3.15	12.	11.514	.243	30.512	11½
12½	3.65	13.	12.482	.259	35.243	11½
13½	4.20	14.	13.448	.276	40.454	11½
14½	4.75	15.	14.418	.291	45.714	11½
15½	5.25	16.	15.396	.302	50.632	11½

The permissible variation in weight is 5 per cent above and 5 per cent below.

Screw and socket furnished with threads and couplings and in random lengths, unless otherwise ordered.

Inserted joint furnished threaded and in random lengths, unless otherwise ordered.

Thickness of walls make it impracticable to cut threads of coarser pitch than shown on table.

For cut lengths, an extra charge will be made above random.

For galvanized or coated casing, an extra charge will be made above black.

BADGER GALVANIZED WELL CASING AND GRAVEL SHOES

E-Z GALVANIZED SCREW JOINT WELL CASING

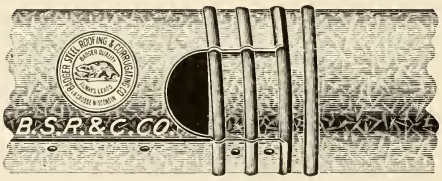


Plate E11501

Badger E-Z Screw Joint makes a connection that cannot be forced to telescope or pulled apart under pressure.

Every joint is made with an extra swedge turned in; this not only strengthens it, but makes it perfectly smooth on the inside, which prevents the rope from being cut.

E-Z Screw Joint Well Casing is put up in crates of 57 feet each, consisting of the following: four, 11½-foot lengths riveted; and one length consisting of four 3-foot screw joint lengths.

Size Inches	Weight per 100 Feet Pounds	Price per Foot	Size Inches	Weight per 100 Feet Pounds	Price per Foot
3	150	.23	6½	325	.34
3½	175	.24	6¾	338	.36
4	200	.25	7	350	.37
4½	225	.26	7½	375	.39
5	250	.28	8	400	.41
5¼	262	.29	9	450	.45
5½	275	.30	10	500	.50
5¾	287	.31	11	550	.54
6	300	.32	12	600	.58
6¼	312	.33	....	...	...

Above are approximate weights without crates. For price on 18 gauge, add 30 per cent to above list. Unless otherwise specified, No. 20 will be shipped. Tongs for connecting can be furnished at 1.75 per pair.

GRAVEL SHOES

Gravel shoes are used as bottom joint, with double construction and rib at bottom.

Size..... inches	3 to 6½	7 to 9	10 to 12
Price..... each	1.60	2.25	3.35

STANDARD STEEL AND IRON BOILER TUBES

All Weights and Dimensions are Nominal

List Adopted February, 1916

External Diameter Inches	Standard Thickness Minimum Birmingham Wire Gauge	Standard Thickness Minimum Inches	Price, per Foot — Standard Thickness	One Extra Wire Gauge	Two Extra Wire Gauges	Three Extra Wire Gauges	Four Extra Wire Gauges
1¾	13	.095	.22	.26	.28	.31	.34
2	13	.095	.21	.24	.26	.28	.31
2¼	13	.095	.24	.27	.29	.32	.35
2½	12	.109	.30	.33	.36	.39	.43
2¾	12	.109	.34	.37	.40	.44	.48
3	12	.109	.38	.41	.45	.49	.54
3¼	11	.120	.45	.49	.53	.59	.63
3½	11	.120	.48	.53	.58	.64	.69
3¾	11	.120	.52	.57	.62	.68	.74
4	10	.134	.61	.66	.73	.79	.88
4½	10	.134	.69	.75	.83	.89	.99
5	9	.148	.81	.90	.97	1.08	1.17
6	8	.165	1.08	1.17	1.31	1.41	1.52
7	8	.165	1.27	1.38	1.54	1.66	1.78
8	8	.165	1.45	1.58	1.76	1.90	2.05
9	7	.180	1.78	1.99	2.15	2.31	2.50
10	6	.203	2.22	2.39	2.57	2.79	3.04
11	5	.220	2.63	2.84	3.07	3.35	3.53
12	....	.229	2.99	3.23	3.51	3.76	4.10
13	4	.238	3.36	3.64	3.98	4.19	4.72

Boiler tubes to special specifications, special prices upon application.

Tubes more than four gauges heavier than standard will be charged per pound.

THEORETICAL WEIGHTS OF EXTRA GAUGE STEEL TUBES

Outside Diameter.....inches	1¾	2	2¼	2½	2¾	3	3¼
One Extra Gauge, per foot.lbs.	1.910	2.201	2.492	3.050	3.370	3.691	4.459
Two " Gauges, " .. "	2.089	2.409	2.729	3.386	3.743	4.101	4.903
Three " " " .. "	2.312	2.670	3.028	3.717	4.112	4.508	5.436
Four " " " .. "	2.532	2.927	3.322	4.114	4.555	4.995	5.901

Outside Diameter.....inches	3½	3¾	4	4½	5	6	7
One Extra Gauge, per foot.lbs.	4.817	5.175	6.088	6.879	8.520	11.188	13.110
Two " Gauges, " .. "	5.298	5.693	6.758	7.639	9.266	12.568	14.736
Three " " " .. "	5.877	6.317	7.343	8.304	10.400	13.580	15.930
Four " " " .. "	6.382	6.863	8.232	9.316	11.231	14.646	17.188

Outside Diameter.....inches	8	9	10	11	12	13	.....
One Extra Gauge, per foot.lbs.	15.033	19.072	22.979	27.355	31.188	35.243	.....
Two " Gauges, " .. "	16.904	20.629	24.813	29.711	34.008	38.569	.....
Three " " " .. "	18.280	22.271	26.945	32.503	36.512	40.691	.....
Four " " " .. "	19.730	24.179	29.470	34.283	39.918	45.971	.....

Under the A. S. M. E. specifications to which all these merchant boiler tubes are manufactured, the gauge ordered is the lightest weight we may ship. As it is impossible to manufacture to an exact weight, the necessary variation will be represented by overweight. Therefore the exact theoretical weight of each gauge is published, and the best estimate possible of the average shipping weight, and the list prices are predicted on this estimated weight. Tubes may be found to vary in weight from this estimate, but will not be lighter than the weight of the gauge ordered.

SEAMLESS COPPER BOILER TUBE FERRULES

PLAIN FERRULE

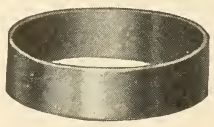


Plate E11521

FLANGED FERRULE

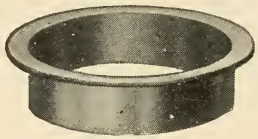


Plate E11522

These are high grade ferrules, having no seams and made of pure sheet copper. They are made to exact sizes and annealed, being ready for use as soon as you receve them. They are a great saving to the purchaser of boilers, as it is not necessary to be continually expanding the tubes, the ferrules keeping the flues tight.

PRICE, PER HUNDRED

Adopted July 1, 1912

Diameter Inches	Width Inches	Thickness, Inches						
		1/32	3/64	1/16	5/64	3/32	7/64	1/8
1	1/2	5.10	7.50	9.50	11.75	13.50	15.50	16.50
	5/8	6.30	9.30	11.75	14.50	16.50	19.00	20.00
1 1/4	1/2	6.30	9.30	11.75	14.50	16.50	19.00	20.00
	5/8	7.80	11.60	14.50	18.25	20.50	23.50	24.75
1 1/2	1/2	7.50	11.40	14.00	17.75	19.50	23.00	24.00
	5/8	9.30	14.20	17.00	21.75	25.00	28.50	29.75
1 3/4	1/2	8.70	13.20	16.25	20.50	22.50	26.00	27.25
	5/8	10.80	16.40	20.25	25.50	28.50	33.00	34.75
	3/4	12.90	19.60	24.25	30.50	34.50	40.00	42.00
1 7/8	1/2	9.30	14.20	17.00	21.75	25.00	28.50	30.00
	5/8	11.60	17.70	21.50	27.00	31.00	35.50	37.50
	3/4	13.90	21.20	26.00	32.25	37.00	42.50	44.75
	7/8	16.20	24.70	30.50	37.50	43.00	49.50	52.25
	1	18.50	28.20	35.00	42.75	49.00	56.50	59.50
2	1/2	9.80	14.90	18.25	23.00	25.50	30.00	31.50
	5/8	12.30	18.60	23.00	28.75	32.00	37.50	39.50
	3/4	14.80	22.30	27.75	34.50	38.50	45.00	47.50
	7/8	17.30	26.00	32.50	40.25	45.00	52.50	55.25
	1	19.80	29.70	37.25	46.00	51.50	60.00	63.25
2 1/4	5/8	13.50	20.40	25.25	31.75	36.00	41.50	43.50
	3/4	16.30	24.60	30.50	38.25	43.00	50.00	52.50
	7/8	19.10	28.80	35.75	44.75	50.00	58.50	61.50
	1	21.90	33.00	41.00	51.25	57.00	67.00	70.50
2 1/2	5/8	15.00	22.80	28.25	35.75	39.50	46.50	49.00
	3/4	18.10	27.40	34.00	42.75	47.50	55.50	58.50
	7/8	21.20	32.00	39.75	49.75	55.50	64.50	68.00
	1	24.30	36.60	45.50	56.75	63.50	73.50	77.50
3	3/4	21.90	33.00	41.00	51.00	57.00	66.50	70.00
	7/8	25.50	38.40	47.75	59.50	66.50	77.50	81.50
	1	29.10	43.80	54.50	68.00	76.00	88.50	93.25
3 1/4	3/4	23.70	35.70	44.25	55.50	62.00	72.00	75.75
	7/8	27.60	41.60	51.50	64.50	72.00	84.00	88.50
	1	31.50	47.50	58.75	73.50	82.00	96.00	101.25
3 1/2	3/4	24.60	37.00	45.75	57.25	64.00	75.00	79.00
	7/8	29.30	44.00	54.50	68.25	76.00	89.00	93.75
	1	34.00	51.00	63.25	79.25	88.00	103.00	108.50
4	7/8	33.60	50.70	63.00	79.00	88.00	103.00	108.50
	1	38.40	57.90	72.00	90.25	100.00	117.00	123.25
	1 1/4	48.00	72.30	90.00	112.75	124.00	145.00	153.00

In ordering ferrules be sure to state inside diameter, outside diameter and width; also thickness of copper desired and whether with or without flange.

NIPPLES

CLOSE NIPPLE

Plate E11531

SHOULDER NIPPLE

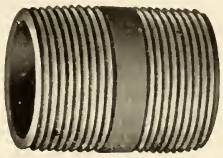


Plate E11532

BLACK RIGHT-HAND NIPPLES

Length, Inches						Size, Inches	Price Each		Price, Extra Long Nipples, Each								
									Length, Inches								
Close	Short	Long					Close or Short	Long	4	5	6	7	8	9	10	11	12
¾	1½	2	2½	3	3½	⅛	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
⅞	1½	2	2½	3	3½	¼	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1	1½	2	2½	3	3½	⅜	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1⅛	1½	2	2½	3	3½	½	.05	.07	.08	.10	.12	.14	.16	.18	.20	.22	.23
1⅜	2	2½	3	3½	4	¾	.06	.09	...	.11	.13	.17	.18	.20	.22	.24	.26
1½	2	2½	3	3½	4	1	.08	.13	...	.15	.18	.23	.25	.28	.31	.34	.36
1⅝	2½	3	3½	4	4½	1¼	.11	.17	...	.20	.24	.29	.33	.36	.40	.44	.47
1¾	2½	3	3½	4	4½	1½	.13	.20	...	.25	.29	.36	.40	.45	.50	.54	.59
2	2½	3	3½	4	4½	2	.18	.27	...	.32	.38	.50	.54	.59	.65	.72	.77
2½	3	3½	4	4½	5	2½	.39	.59	...	...	.68	.90	.97	1.06	1.17	1.26	1.35
2⅝	3	3½	4	4½	5	3	.48	.72	...	...	.85	1.08	1.20	1.33	1.45	1.58	1.70
2¾	4	4½	5	5½	6	3½	.75	1.05	...	...	....	1.30	1.45	1.60	1.75	1.90	2.05
2⅞	4	4½	5	5½	6	4	.85	1.20	...	...	....	1.52	1.69	1.87	2.05	2.22	2.40
2⅞	4	4½	5	5½	6	4½	1.25	1.70	...	...	....	2.25	2.50	2.75	2.95	3.17	3.40
3	4½	5	5½	6	6½	5	1.55	2.45	...	...	....	2.58	2.83	3.10	3.35	3.60	3.85
3⅛	4½	5	5½	6	6½	6	1.85	2.90	...	...	....	3.05	3.35	3.70	4.00	4.30	4.65
3¼	5	...	...	...	...	7	3.20	.....	...	...	3.60	4.05	4.45	4.90	5.30	5.75	6.15
3½	5	...	...	...	...	8	3.55	.....	...	...	4.05	4.55	5.05	5.50	6.00	6.50	7.00
3⅝	5	...	...	...	...	9	5.25	.....	..	...	....	....	6.50	7.10	7.75	8.40	9.00
3⅞	5	...	...	...	...	10	6.75	.....	...	...	....	....	8.25	8.90	9.70	10.40	11.15
4½	5	...	...	...	...	12	8.00	.....	...	...	....	....	10.00	10.80	11.75	12.70	13.65

Nipples made to order from extra heavy pipe at double above list. Nipples larger than 12 inches made to order and charged as cut pipe. Threads extra.

NIPPLES

BLACK RIGHT AND LEFT-HAND NIPPLES

Length, Inches			Size, Inches	Price, Ea.		Price, Extra Long Nipples, Each								
						Length, Inches								
Close	Short	Long		Close or Short	Long	4	5	6	7	8	9	10	11	12
3/4	1 1/2	2 2 1/2 3 3 1/2	1/8	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
7/8	1 1/2	2 2 1/2 3 3 1/2	1/4	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
1	1 1/2	2 2 1/2 3 3 1/2	3/8	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
1 1/8	1 1/2	2 2 1/2 3 3 1/2	1/2	.07	.10	.11	.13	.16	.18	.21	.24	.27	.29	.31
1 3/8	2	2 1/2 3 3 1/2 4	3/4	.08	.12	....	.15	.17	.23	.25	.27	.29	.32	.35
1 1/2	2	2 1/2 3 3 1/2 4	1	.11	.18	....	.20	.24	.31	.33	.37	.41	.45	.48
1 5/8	2 1/2	3 3 1/2 4 4 1/2	1 1/4	.15	.23	....	.27	.32	.39	.45	.50	.55	.60	.65
1 3/4	2 1/2	3 3 1/2 4 4 1/2	1 1/2	.18	.27	....	.34	.39	.48	.52	.60	.67	.72	.80
2	2 1/2	3 3 1/2 4 4 1/2	2	.24	.36	....	.43	.51	.67	.72	.80	.87	.96	1.03
2 1/2	3	3 1/2 4 4 1/2 5	2 1/2	.52	.79	....	....	.91	1.20	1.30	1.40	1.55	1.68	1.80
2 5/8	3	3 1/2 4 4 1/2 5	3	.65	.96	....	....	1.13	1.44	1.60	1.77	1.93	2.10	2.27
2 3/4	4	4 1/2 5 5 1/2 6	3 1/2	1.00	1.40	....	....	....	1.75	1.95	2.15	2.35	2.55	2.75
2 7/8	4	4 1/2 5 5 1/2 6	4	1.15	1.60	....	....	....	2.00	2.25	2.50	2.75	3.00	3.25

Add 60 per cent to above prices for galvanized right and left nipples.

GALVANIZED RIGHT-HAND NIPPLES

Length, Inches			Size, Inches	Price, Ea.		Price, Extra Long Nipples, Each								
						Length, Inches								
Close	Short	Long		Close or Short	Long	4	5	6	7	8	9	10	11	12
3/4	1 1/2	2 2 1/2 3 3 1/2	1/8	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
7/8	1 1/2	2 2 1/2 3 3 1/2	1/4	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1	1 1/2	2 2 1/2 3 3 1/2	3/8	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1 1/8	1 1/2	2 2 1/2 3 3 1/2	1/2	.06	.11	.13	.16	.18	.23	.26	.28	.31	.33	.36
1 3/8	2	2 1/2 3 3 1/2 4	3/4	.08	.14	....	.18	.21	.26	.29	.32	.35	.38	.41
1 1/2	2	2 1/2 3 3 1/2 4	1	.11	.19	....	.24	.28	.34	.38	.42	.47	.51	.55
1 5/8	2 1/2	3 3 1/2 4 4 1/2	1 1/4	.17	.29	....	.32	.38	.45	.51	.57	.63	.69	.75
1 3/4	2 1/2	3 3 1/2 4 4 1/2	1 1/2	.21	.35	....	.39	.46	.55	.63	.70	.77	.84	.91
2	2 1/2	3 3 1/2 4 4 1/2	2	.27	.47	....	.52	.61	.74	.83	.93	1.03	1.13	1.23
2 1/2	3	3 1/2 4 4 1/2 5	2 1/2	.56	.86	....	....	1.00	1.26	1.41	1.56	1.71	1.86	2.01
2 5/8	3	3 1/2 4 4 1/2 5	3	.70	1.10	....	....	1.30	1.60	1.80	2.00	2.20	2.40	2.60
2 3/4	4	4 1/2 5 5 1/2 6	3 1/2	1.20	1.70	....	....	....	2.10	2.35	2.60	2.85	3.15	3.40
2 7/8	4	4 1/2 5 5 1/2 6	4	1.35	1.87	....	....	....	2.30	2.60	2.90	3.20	3.50	3.80
2 7/8	4	4 1/2 5 5 1/2 6	4 1/2	1.85	2.60	....	....	....	3.30	3.65	4.05	4.45	4.85	5.25
3	4 1/2	5 5 1/2 6 6 1/2	5	2.30	3.15	....	....	....	3.75	4.20	4.60	5.00	5.40	5.85
3 1/8	4 1/2	5 5 1/2 6 6 1/2	6	2.80	4.25	....	....	....	4.50	5.00	5.55	6.05	6.60	7.15
3 1/4	5	... ...	7	4.25	....	....	....	4.95	5.65	6.35	7.05	7.75	8.45	9.20
3 1/2	5	... ...	8	5.00	....	....	....	5.80	6.65	7.50	8.35	9.25	10.10	10.95

Nipples made to order from galvanized extra heavy pipe at double above list.

NIPPLES

EXTRA HEAVY RIGHT HAND

Length, Inches						Size, Inches	Price Each		Price, Extra Long Nipples, Each								
									Length, Inches								
Close	Short	Long					Close or Short	Long	4	5	6	7	8	9	10	11	12
1	1½	2	2½	3	3½	⅜	.08	.12	.14	.16	.20	.24	.28	.30	.34	.36	.38
1⅛	1½	2	2½	3	3½	½	.10	.14	.16	.20	.24	.28	.32	.36	.40	.44	.46
1⅜	2	2½	3	3½	4	¾	.12	.18	...	.22	.26	.34	.36	.40	.44	.48	.52
1½	2	2½	3	3½	4	1	.16	.26	...	.30	.36	.46	.50	.56	.62	.68	.72
1⅝	2½	3	3½	4	4½	1¼	.22	.34	...	.40	.48	.58	.66	.72	.80	.88	.94
1¾	2½	3	3½	4	4½	1½	.26	.40	...	.50	.58	.72	.80	.90	1.00	1.08	1.18
2	2½	3	3½	4	4½	2	.36	.54	...	.64	.76	1.00	1.08	1.18	1.30	1.44	1.54
2½	3	3½	4	4½	5	2½	.78	1.18	...	...	1.36	1.80	1.94	2.12	2.34	2.52	2.70
2⅝	3	3½	4	4½	5	3	.96	1.44	...	...	1.70	2.16	2.40	2.66	2.90	3.16	3.40
2¾	4	4½	5	5½	6	3½	1.50	2.10	...	...	....	2.60	2.90	3.20	3.50	3.80	4.10
2⅞	4	4½	5	5½	6	4	1.70	2.40	...	...	....	3.04	3.38	3.74	4.10	4.44	4.80
2⅞	4	4½	5	5½	6	4½	2.50	3.40	...	...	....	4.50	5.00	5.50	5.90	6.34	6.80
3	4½	5	5½	6	6½	5	3.10	4.90	...	...	....	5.16	5.66	6.20	6.70	7.20	7.70
3⅛	4½	5	5½	6	6½	6	3.70	5.80	...	...	....	6.10	6.70	7.40	8.00	8.60	9.30
3¼	5	6	...	...	...	7	6.40	7.20	...	...	....	8.10	8.90	9.80	10.60	11.50	12.30
3¼	5	6	...	...	...	8	7.10	8.10	...	...	....	9	10	10.10	11.00	12.00	13.00	14.00

TANK NIPPLES—BLACK

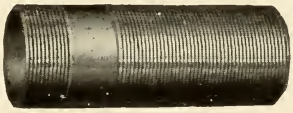


Plate E11551

Size Inches	Price, Each									
	Length, Inches									
	3½	4	5	6	7	8	9	10	11	12
½	.07	.08	.10	.12	.14	.16	.18	.20	.22	.23
¾	....	.09	.11	.13	.17	.18	.20	.22	.24	.26
1	....	.13	.15	.18	.23	.25	.28	.31	.34	.36
1¼	....	.17	.20	.24	.29	.33	.36	.40	.44	.47
1½	....	.20	.25	.29	.36	.40	.45	.50	.54	.59
2	....	....	.32	.38	.50	.54	.59	.65	.72	.77
2½	....	....	.59	.68	.90	.97	1.06	1.17	1.26	1.35
3	....	....	....	.85	1.08	1.20	1.33	1.45	1.58	1.70
3½	....	....	....	....	1.30	1.45	1.60	1.75	1.90	2.05
4	....	....	....	....	1.52	1.69	1.87	2.05	2.22	2.40
5	....	....	....	....	....	2.83	3.10	3.35	3.60	3.85
6	....	....	....	....	....	3.35	3.70	4.00	4.30	4.65

For galvanized tank nipples add 60 per cent to above list.

WROUGHT COUPLINGS AND LONG SCREWS

STANDARD COUPLING

Plate E11561

EXTRA HEAVY COUPLING

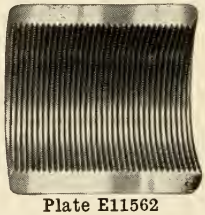


Plate E11562

STANDARD COUPLINGS

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Black.....each	.05	.05	.06	.07	.10	.13	.17	.21	.28
" Galvanized.... "	.06	.06	.08	.10	.13	.18	.25	.32	.40

Size.....inches	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8
Price, Black.....each	.40	.60	.80	1.00	1.50	1.65	2.40	3.25	4.25
" Galvanized.... "	.55	.80	1.05	1.40	2.00	2.25	3.25	4.20	5.50

Size.....inches	9	10	11	12	13	14	15	....	....
Price, Black.....each	5.50	7.50	10.00	10.00	12.50	18.75	25.00	....	....
" Galvanized.... "	7.00	9.75	12.85	13.65	16.50	23.85	30.25	....	....

EXTRA HEAVY COUPLINGS

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black.....each	.14	.20	.26	.34	.42	.56	.80	1.20
" Galvanized..... "	.20	.25	.32	.42	.55	.75	1.05	1.50

LINE, TUBING AND DRIVE COUPLING

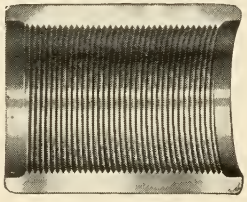


Plate E11563

LONG SCREW

Plate E11564

LINE, TUBING AND DRIVE COUPLINGS

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price, Black.....each	.10	.10	.10	.12	.15	.25	.30	.40	.60	.80	1.30	1.50
" Galvanized.... "	.14	.14	.14	.16	.21	.37	.46	.57	.85	1.15	1.90	2.15

Size.....inches	4 1/2	5	6	7	8	9	10	11	12	13	14	15
Price, Black.....each	2.00	2.40	2.80	3.85	4.00	5.00	6.00	8.00	8.00	10.00	13.00	20.00
" Galvanized.... "	2.85	3.45	4.00	5.55	5.80	7.25	8.75	10.75	11.15	13.75	17.75	25.00

LONG SCREWS WITH COUPLING AND LOCKNUT FACED

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Standard Length.....inches	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
Price, Black.....each	.30	.35	.40	.55	.75	1.00	1.30	1.70
" Galvanized..... "	.35	.40	.50	.66	1.00	1.25	1.60	2.10

Long screws are furnished with malleable ribbed couplings and followers.

MALLEABLE IRON FITTINGS

ELBOWS

90°

Plate E11571

45°

Plate E11572

90° STREET

Plate E11573

45° STREET

Plate E11574

90°—STRAIGHT AND REDUCING

Size .inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Black. each	.06	.07	.08	.10	.15	.22	.25	.35	.50	.90	1.50	2.25	3.00	3.50	4.00	6.50
Galv... "	.08	.09	.11	.14	.20	.32	.40	.60	.90	1.50	2.60	3.75	5.00	6.00	6.50	10.00

90°—RIGHT AND LEFT

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Black .....each	.09	.11	.13	.17	.25	.30	.40	.65
" Galvanized..... "	.12	.16	.17	.23	.35	.45	.65	1.00

45°

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Price, Black, each	.08	.10	.12	.18	.26	.36	.54	.82	1.25	2.50	3.25	4.50	5.25	6.00	7.50
" Galv.. "	.12	.15	.20	.25	.40	.50	.85	1.35	1.90	3.75	4.75	6.75	8.00	9.00	11.00

STREET

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Price, 90°, Black.....each	.08	.10	.10	.12	.20	.25	.40	.55	.90	1.50	2.25	3.50
" 90°, Galvanized.... "	.10	.12	.12	.15	.28	.35	.55	.80	1.30	2.25	3.50	....
" 45°, Black..... "	....	....	.12	.12	.20	.25	.40	.55	.90	1.50	2.25	3.50
" 45°, Galvanized.... "	....	....	.15	.15	.28	.35	.55	.80	1.30	2.25	3.50	....

SIDE OUTLET

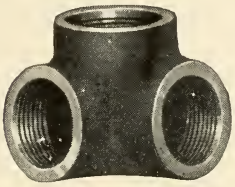


Plate E11575

FEMALE

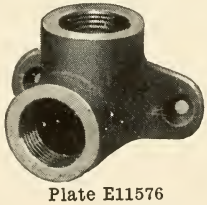


Plate E11576

DROP MALE AND FEMALE

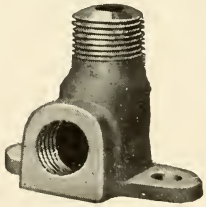


Plate E11577

SIDE OUTLET

Size .....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Black .....each	.08	.10	.18	.30	.45	.60	1.00
" Galvanized ..... "	.10	.15	.25	.45	.65	.90	1.50

DROP

Size .....inches	1/4	1/4x3/8	3/8	1/2	1/2x3/8	3/4	3/4x3/8
Price, Female, Black .....each	.06	.08	.08	.12	.12	.20	....
" " Galvanized ..... "	....	....	.12	.20	.15	.35	....
" Male and Female, Black..... "	....	.08	.08	....	.12	....	.16
" " " " Galvanized..... "	....	.12	.12	....	.20	....	.25

MALLEABLE IRON FITTINGS

TEES

STRAIGHT

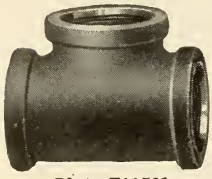


Plate E11581

SERVICE

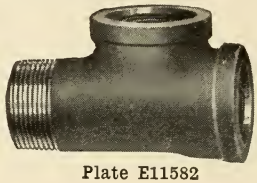


Plate E11582

STRAIGHT AND REDUCING

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Price, Black.....each	.07	.08	.09	.11	.15	.25	.30	.45
" Galvanized..... "	.09	.10	.13	.16	.20	.38	.50	.70
Size.....inches	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Price, Black.....each	.60	1.05	1.70	2.50	3.40	4.25	5.00	7.75
" Galvanized..... "	1.00	1.90	3.00	4.25	5.75	6.75	8.00	12.00

SERVICE

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3x2 1/2x3	3x3x4
Price, Black.....each	.12	.15	.25	.35	.50	.75	1.15	2.00	2.50	2.50	4.00
" Galvanized. "	.15	.20	.35	.50	.70	1.10	1.65	2.75	3.50	3.50	6.00

FOUR-WAY

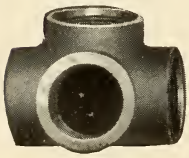


Plate E11583

FEMALE DROP

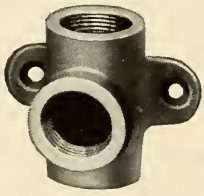


Plate E11584

MALE AND FEMALE

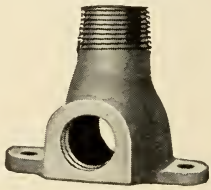


Plate E11585

FOUR-WAY AND DROP

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Four-way, Black.....each	.12	.14	.20	.35	.50	.80	1.25
" " Galvanized..... "	.17	.20	.28	.50	.70	1.10	1.75
" Drop, Black..... "	.10	.14	.22	.30	...	....	....
" " Galvanized..... "	.15	.25	.40	.55	...	....	....
" " M. and F., Black..... "	.10	.14	.22	.30	...	....	....
" " M. " F., Galvanized..... "	.15	.25	.40	.55	...	....	....

Plate E11586

STRAIGHT AND REDUCING CROSSES

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Price, Black.....each	.09	.10	.16	.20	.30	.40	.60
" Galvanized... "	.12	.14	.25	.29	.45	.60	.90

Size.....inches	2	2 1/2	3	3 1/2	4	5	6
Price, Black.....each	1.00	1.75	3.00	3.25	5.25	7.50	13.00
" Galvanized... "	1.50	2.75	4.50	5.00	8.00	12.00	18.00

MALLEABLE IRON FITTINGS

"Y" BRANCH

Plate E11591

CROSSOVER

Plate E11592

CROSSOVER WITH BACK OUTLET

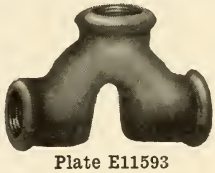


Plate E11593

"Y" BRANCHES, STRAIGHT AND REDUCING

Size.....inches	½	¾	1	1¼	1½	2	2½	3	4
Price, Black.....each	.40	.50	.60	.80	1.00	1.70	2.00	4.00	5.50
" Galvanized..... "	.60	.75	.90	1.25	1.50	2.50	3.00	6.00	8.25

CROSSOVERS

Size.....inches	½	½	½	½	¾	¾	¾	1	1
To Cross Pipe..... "	½	¾	1	1¼	¾	1	1¼	1	1¼
Price, Regular, Galvanized...each	.22	.35	.45	.60	.32	.50	.62	.49	.68
" with Back Outlet, Galv. "	.26	...	...	...	.39	...	...	.60	...

REDUCER

Plate E11594

RIGHT AND LEFT HAND COUPLING

Plate E11595

CAP

Plate E11596

REDUCERS AND COUPLINGS

Size.....inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, Reducers, Black.....each	.05	.06	.07	.10	.16	.20	.28	.45	.70	1.00	1.50	1.85
" " Galvanized. "	.08	.10	.10	.15	.25	.35	.45	.75	1.05	1.65	2.40	3.05
" R & L Cplgs., Black... "	.04	.06	.08	.12	.16	.25	.36	.52	.70	1.00	....	....
" R & L " Galv.... "	.06	.09	.10	.17	.25	.35	.55	.75	1.05	1.50	....	....

CAPS

Size.....inches	⅛	¼	⅜	½	¾	1	1¼	1½
Price, Black.....each	.03	.03	.04	.05	.08	.12	.16	.24
" Galv..... "	.04	.04	.05	.08	.12	.17	.24	.38

Size.....inches	2	2½	3	3½	4	5	6	....
Price, Black.....each	.32	.45	.85	1.00	1.20	2.50	3.50	....
" Galv..... "	.52	.76	1.30	1.60	2.00	....	....	....

MALLEABLE IRON FITTINGS

RETURN BENDS

CLOSE PATTERN

Plate E11601

MEDIUM PATTERN

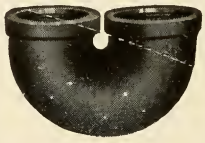


Plate E11602

CLOSE PATTERN

Close pattern return bends will not make up parallel coils, as the distance, center to center, of two adjacent bends is greater than the center to center of openings of a single bend.

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Center to Center.....inches	....	1	1 1/4	1 1/2	1 3/4	2 3/16	2 5/8
Price, R. H., Black.....each	.16	.18	.25	.35	.50	.75	1.00
" " Galvanized..... "	.23	.25	.35	.55	.75	1.15	1.65
" R. and L., Black ..... "	....	.23	.30	.45	.60	.90	1.25
" L. H., Black ..... "	....	.23	.30	.45	.60	.90	1.25

MEDIUM PATTERN

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Center to Center.....inches	1 5/32	1 1/4	1 1/2	1 7/8	2 1/4	2 1/2	3
Price, R. H., Black.....each	.16	.18	.25	.35	.50	.75	1.00
" " Galvanized..... "	.23	.25	.35	.55	.75	1.15	1.65
" R. and L., Black ..... "	....	.23	.30	.45	.60	.90	1.25
" L. H., Black ..... "	....	.23	.30	.45	.60	.90	1.25

OPEN PATTERN

Plate E11603

SPECIAL WIDE PATTERN

Plate E11604

OPEN PATTERN

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Center to Center..... inches	1 3/8	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5
Price, R. H., Black.....each	.18	.20	.30	.50	.65	.85	1.25	2.00	3.00
" " Galvanized.. "	.25	.28	.45	.70	.90	1.25	2.00	3.50	5.00
" R. and L., Black ... "	....	.25	.38	.60	.80	1.05	1.55	2.50	3.75
" L. H., Black ..... "	....	.25	.38	.60	.80	1.05	1.55	2.50	3.75

SPECIAL WIDE PATTERN—RIGHT-HAND

Size.....inches	3/8	3/4	3/4	1	1	1 1/4	1 1/2
Center to Center.....inches	1 5/8	4	6	4	6	6	6
Price, Black.....each	.25	1.00	1.25	1.25	1.25	1.25	2.00
" Galvanized..... "	.30	1.35	1.65	1.70	1.70	1.70	2.75

Size.....inches	2	2	3	3	4	6	....
Center to Center.....inches	5	6	7 1/2	8	6	12	....
Price, Black .....each	3.00	4.00	5.00	5.00	8.00	16.00	....
" Galvanized ..... "	4.00	5.00	6.50	6.50	10.00	20.00	....

UNIONS

STANDARD MALLEABLE

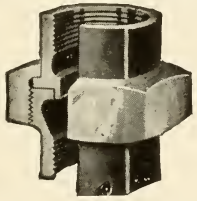


Plate E11611

JEFFERSON

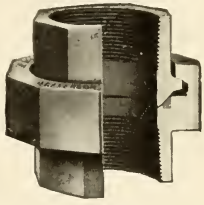


Plate E11612

STANDARD MALLEABLE

For Steam Working Pressures up to 150 Pounds

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4
Price, Black.....each	.18	.18	.20	.22	.27	.33	.46
" Galv..... "	.27	.27	.30	.33	.40	.50	.70
Size.....inches	1 1/2	2	2 1/2	3	3 1/2	4	....
Price, Black.....each	.58	.75	1.55	2.10	3.65	4.35	....
" Galv..... "	.90	1.15	2.35	3.15	5.50	6.50	....

JEFFERSON

Bronze to Iron Seat, Ground Ball Joint

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4
Price, Black.....each	.30	.30	.40	.50	.60	.80	1.20
" Galv..... "	.45	.45	.60	.75	.90	1.20	1.80
Size.....inches	1/2	2	2 1/2	3	3 1/2	4	....
Price, Black.....each	1.60	2.00	3.20	4.80	8.00	10.00	....
" Galv..... "	2.40	3.00	4.80	7.20	12.00	15.00	....

ROCKWOOD PRESSED STEEL UNIONS

Sherardized-bronze Seats—Tested 1000 Pounds

FEMALE

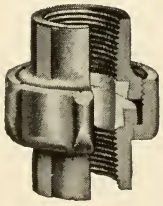


Plate E11613

MALE AND FEMALE

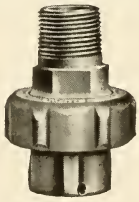


Plate E11614

Size.....inches	1/4	3/8	1/2	3/4	1
Price, Female.....each	.30	.40	.50	.60	.80
" Male and Female..... "	.38	.50	.62	.75	1.00
Size.....inches	1 1/4	1 1/2	2	2 1/2	3
Price, Female.....each	1.20	1.60	2.00	3.60	5.20
" Male and Female..... "	1.50	2.00	2.50	....	....

"KEWANEE" UNIONS

OCTAGON PATTERN "The Air-Tested Union with no Inserted Parts"

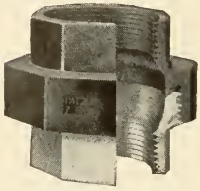


Plate E11621

COMBINATION BRASS AND IRON GROUND BALL JOINT

(Patented)

NON-CORROSIVE THREAD CONNECTION

Each Union Tested with Extreme Compressed Air Pressure under Water

NO GASKET REQUIRED

Suitable for Steam Working Pressures up to 200 Pounds

The advantages peculiar to the "KEWANEE" Union are the following:

(a). Brass to iron thread connection, which will not corrode, and the union can be connected and re-connected an indefinite number of times without injury.

(b). The "KEWANEE" Union has three solid parts. There are no inserted pieces.

(c). Brass to iron ball joint seat—the necessity for a gasket is obviated, and the junction of the two metals insures a better joint than one made of the same metal.

(d). Every union is carefully tested with extreme air pressure under water; and if the slightest leak shows in the form of a bubble, the union is summarily rejected. There are no seconds.

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price, Black..each	.18	.19	.22	.27	.40	.48	.66	.80	1.14	2.10	2.65	4.30	5.50
" Galv. "	.22	.23	.26	.34	.49	.60	.82	1.10	1.40	2.75	3.50	6.30	7.50

FLANGE UNIONS

"KEWANEE" FLANGE UNION IS TIGHT EVEN WHEN PIPE ALIGNMENT IS IMPERFECT

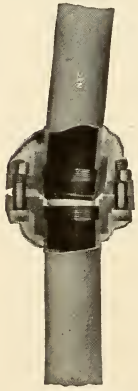


Plate E11622

EXTERIOR

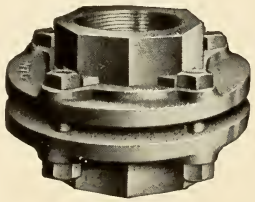


Plate E11623

SECTIONAL

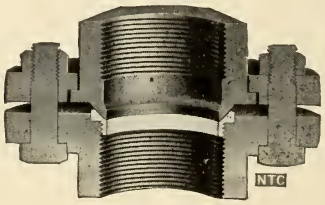


Plate E11624

BRASS AND MALLEABLE IRON SELF-SEATING BALL JOINT

(Patented)

NO GASKET REQUIRED

Each Union is Tested to 400 Pounds Hydraulic Pressure

The "KEWANEE" Flange Union is the result of careful study and experiment to produce a flange union which can always be made tight and remain so without the use of a gasket. These flange unions are made entirely of the highest grade malleable iron, excepting the brass seat, which is made practically integral with the malleable part by the only method which experience has shown to be enduring.

Size.....inches	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price, Black .....each	.80	1.20	1.60	2.00	3.20	4.80	6.00	7.50
" Galvanized..... "	1.20	1.80	2.40	3.00	4.80	7.20	9.00	11.25
Size.....inches	4 1/2	5	6	7	8	9	10	....
Price, Black .....each	8.75	10.00	12.50	15.00	18.00	21.60	28.80	....
" Galvanized..... "	13.00	15.00	18.75	22.50	27.00	32.40	43.20	....

MALLEABLE IRON FITTINGS

UNION ELBOWS

MALE

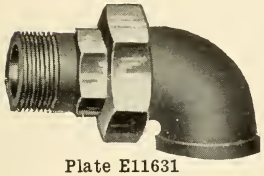


Plate E11631

FEMALE

Plate E11632

UNION TEE
MALE

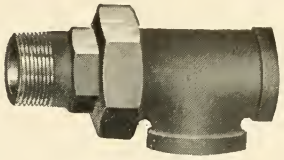


Plate E11633

UNION ELBOWS

Size.....inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price, Male, Black.....each	.43	.45	.48	.62	.72	1.05	1.20	1.80	3.30
" Female, " ..... "	.38	.40	.42	.54	.63	.90	1.05	1.55	2.85
" Male, Galvanized ..... "	.65	.70	.72	.93	1.08	1.60	1.80	2.70	4.95
" Female, " ..... "	.57	.60	.63	.81	.95	1.35	1.58	2.35	4.30

UNION TEES

Size.....inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price, Male, Black.....each	.48	.50	.52	.65	.80	1.10	1.30	1.95	3.70
" Female, " ..... "	.40	.43	.45	.57	.70	.95	1.15	1.70	3.20
" Male, Galvanized ..... "	.72	.75	.78	1.00	1.20	1.65	1.95	2.95	5.55
" Female, " ..... "	.60	.65	.68	.86	1.05	1.45	1.75	2.55	4.80

BOILER ELBOWS

OLD PATTERN

PLAIN

Plate E11634

WITH UNION

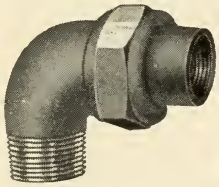


Plate E11635

NEW PATTERN
WITH UNION

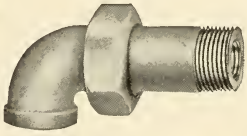


Plate E11636

BOILER COUPLING
WITH UNION

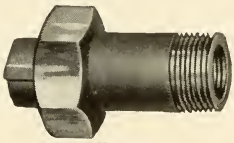


Plate E11637

Size..... inches	Female, Male ¾x¾x1	Female, Male ¾x½x1	Female, Male ½x½x1
Price, Elbows, Plain, Galvanized.....each	.40	.40	.40
" " with Union, Galvanized..... "	.75	.75	.60
" Couplings, Plain, Galvanized ..... "	.40	.40	.40
" " with Union, Galvanized... "	.75	.75	.60

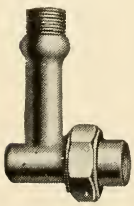


Plate E11638

In ordering, always specify whether "old pattern" or "new pattern" is wanted. Unless otherwise specified, "old pattern" union elbows will be furnished. To avoid mistakes, particular care should be used in making orders quite clear for the above fittings.

LONG BOILER UNION TEES

For Bottom Connection of Range Boiler

Price, ¾x½x1-inch, Galvanized, with Union.....each	.80
" ¾x½x1 " " without Union..... "	.50

MALLEABLE IRON FITTINGS

BUSHING

Plate E11641

FACED BUSHING

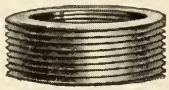


Plate E11642

LOCKNUT

Plate E11643

WASTE NUT

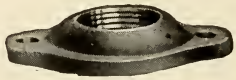


Plate E11644

BUSHINGS—Reducing One Size only

Size ..... inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price, Black ..... each	.04	.04	.04	.05	.06	.07	.09	.14	.21
" Galvanized ..... "	.08	.08	.08	.10	.12	.14	.18	.28	.42

FACED BUSHINGS

Size ..... inches	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price, Black, each	.08	.09	.11	.13	.17	.22	.32	.48	.70	1.20	1.50	2.10	2.60	3.75
" Galv.. "	...	...	...	.20	.25	.33	.48	.72	1.05	1.80	2.25	....	....	....

LOCKNUTS

Size ..... inches	¼	⅜	½	¾	1	1¼	1½	2
Price, Black ..... each	.02	.03	.04	.05	.07	.09	.11	.18
" Galvanized ..... "	.03	.04	.05	.07	.10	.14	.20	.30

FACED LOCKNUTS

Size ..... inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Black ..... each	.08	.09	.10	.12	.15	.20	.25	.30	.35	.45
" Galvanized.. "	.11	.13	.15	.18	.22	.30	.35	.45	.50	.65

WASTE NUTS

Size ..... inches	¼	⅜	½	¾	1	1¼	1½
Price, Black ..... each	.04	.05	.06	.08	.10	.15	.25
" Galvanized ..... "	.08	.10	.12	.16	.20	.30	.50

HEXAGON NIPPLE

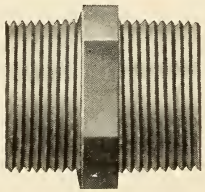


Plate E11645

EXTENSION PIECE

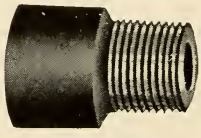


Plate E11646

HEXAGON NIPPLES, RIGHT AND LEFT

Size ..... inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, Black. . each	.20	.20	.20	.25	.30	.40	.50	.70	1.10	1.50	1.90	2.40

Right-hand hexagon nipples made to order at a special price.

EXTENSION PIECES

Size ..... inches	⅜	½	¾
Price, Black ..... each	.06	.09	.12
" Galvanized ..... "	.09	.13	.18

MALLEABLE IRON FITTINGS

LIST OF SIZES

REVISED CLASSIFICATION

Adopted June 5, 1907

ELBOWS

1/8	A	1/2x1/4	B	1x1/2	B	1 1/2x 3/4	C	2	C	3 1/2x3	C	6	C
1/4x1/8	A	1/2x3/8	B	1x3/4	C	1 1/2x1	C	2 1/2x1 1/2	C	3 1/2	C	....	..
1/4	B	1/2	B	1	C	1 1/2x1 1/4	C	2 1/2x2	C	4x3	C	....	..
3/8x1/8	A	3/4x3/8	B	1 1/4x 1/2	B	1 1/2	C	2 1/2	C	4x3 1/2	C	....	..
3/8x1/4	B	3/4x1/2	B	1 1/4x 3/4	C	2x1	C	3x2	C	4	C	....	..
3/8	B	3/4	C	1 1/4x1	C	2x1 1/4	C	3x2 1/2	C	4 1/2	C	....	..
1/2x1/8	A	1x3/8	B	1 1/4	C	2x1 1/2	C	3	C	5	C	....	..

45° ELBOWS

1/4	B	1/2	B	1	B	1 1/2	B	2 1/2	C	3 1/2	C	4 1/2	C	6	C
3/8	B	3/4	B	1 1/4	B	2	B	3	C	4	C	5	C	..	..

RIGHT AND LEFT ELBOWS

1/4	A	3/8	A	1/2	B	3/4	B	1	B	1 1/4	C	1 1/2	C	2	C

STREET ELBOWS

1/8	A	3/4x1/2	B	1	C	1 1/2x1 1/4	C	2	C	3x2 1/2	C
1/4	B	3/4	B	1 1/4x 3/4	C	1 1/2	C	2 1/2	C	4	C
3/8	B	1x1/2	B	1 1/4x1	C	2x1 1/4	C	2 1/2x2	C	4x3	C
1/2	B	1x3/4	B	1 1/4	C	2x1 1/2	C	3	C	.....	..

45° STREET ELBOWS

3/8	A	1/2	B	3/4	B	1	B	1 1/4	B	1 1/2	B	2	B	3	B	4	B

60° ELBOWS

1 1/4	B	1 1/2	B	2	B

SIDE OUTLET ELBOWS

3/8x3/8x1/4	B	1/2x1/2x3/8	B	3/4x3/4x3/8	B	3/4x3/4x3/4	B	1 x1 x1	B	1 1/4x1 1/4x1 1/4	B	2x2x2	B
3/8x3/8x3/8	B	1/2x1/2x1/2	B	3/4x3/4x1/2	B	1x1x3/4	B	1 1/4x1 1/4x1	B	1 1/2x1 1/2x1 1/2	B	.....	..

DROP ELBOWS—FEMALE

1/4x1/4	B	3/8x1/4	B	3/8x3/8	B	1/2x1/2	B	3/4x1/2	B	3/4x3/4	B

DROP ELBOWS—MALE AND FEMALE

1/4x3/8	B	3/8x3/8	B	1/2x3/8	B	1/2x1/2	B

LONG DROP ELBOWS

1/4x3/8	B	3/8x3/8	B	1/2x3/8	B	1/2x1/2	B

DROP TEES—FEMALE

3/8x3/8x1/4	B	1/2x3/8x3/8	B	1/2x1/2x1/2	B	3/4x3/4x1/4	B	3/4x3/4x1/2	B	1x1x3/8	B
3/8x3/8x3/8	B	1/2x1/2x3/8	B	3/4x1/2x3/8	B	3/4x3/4x3/8	B	3/4x3/4x3/4	B	.....	...

DROP TEES—MALE AND FEMALE

1/4x1/4x3/8	B	3/8x1/4x3/8	B	3/8x3/8x3/8	B	1/2x3/8x3/8	B	1/2x1/2x3/8	B	3/4x1/2x3/8	B	3/4x3/4x3/8	B	1x1x3/8	B

LONG DROP TEES

3/8x3/8x3/8	B	3/4x3/4x1/2	B	1x1x1/2	B	1 1/4x1 1/4x1/2	B

FOUR-WAY TEES

3/8	B	1/2	B	3/4	B	1	B	1 1/4	B	1 1/2	B	2	B

MALLEABLE IRON FITTINGS

LIST OF SIZES

REVISED CLASSIFICATION

Adopted June 5, 1907

TEES—STRAIGHT AND REDUCING

1/8x1/8x1/8	A	1/2x 1/2x1	B	1 1/4x1 x1 1/4	C	2 x 3/4x2	C	3 x3 x1	C										
1/8x1/8x1/4	A	3/4x 3/8x1	B	1 1/4x1 1/4x 3/8	B	2 x1 x2	C	3 x3 x1 1/4	C										
1/4x1/4x1/8	A	3/4x 1/2x1	B	1 1/4x1 1/4x 1/2	B	2 x1 1/4x1 1/4	C	3 x3 x1 1/2	C										
1/4x1/4x1/4	B	3/4x 3/4x1	C	1 1/4x1 1/4x 3/4	C	2 x1 1/4x1 1/2	C	3 x3 x2	C										
1/4x1/4x3/8	B	1 x 3/8x 1/2	B	1 1/4x1 1/4x1	C	2 x1 1/4x2	C	3 x3 x2 1/2	C										
3/8x1/4x1/4	B	1 x 3/8x 3/4	B	1 1/4x1 1/4x1 1/4	C	2 x1 1/2x1	C	3 x3 x3	C										
3/8x1/4x3/8	B	1 x 3/8x1	B	1 x1 x1 1/2	C	2 x1 1/2x1 1/4	C	3 1/2x3 1/2x2 1/2	C										
3/8x3/8x1/8	A	1 x 1/2x 3/8	B	1 1/4x1 x1 1/2	C	2 x1 1/2x1 1/2	C	3 1/2x3 1/2x3	C										
3/8x3/8x1/4	B	1 x 1/2x 1/2	B	1 1/4x1 1/4x1 1/2	C	2 x1 1/2x2	C	3 1/2x3 1/2x3 1/2	C										
3/8x3/8x3/8	B	1 x 1/2x 3/4	B	1 1/2x 3/8x1 1/2	B	2 x2 x 3/8	B	4 x3 x4	C										
3/8x3/8x1/2	B	1 x 1/2x1	B	1 1/2x 1/2x1 1/2	B	2 x2 x 1/2	B	4 x3 x3	C										
1/2x1/4x1/2	B	1 x 3/4x 3/8	B	1 1/2x 3/4x 3/4	C	2 x2 x 3/4	C	4 x4 x1	C										
1/2x3/8x1/4	B	1 x 3/4x 1/2	B	1 1/2x 3/4x1 1/2	C	2 x2 x1	C	4 x4 x1 1/4	C										
1/2x3/8x3/8	B	1 x 3/4x 3/4	C	1 1/2x1 x1	C	2 x2 x1 1/4	C	4 x4 x1 1/2	C										
1/2x3/8x1/2	B	1 x 3/4x1	C	1 1/2x1 x1 1/4	C	2 x2 x1 1/2	C	4 x4 x2	C										
1/2x1/2x1/4	B	1 x1 x 1/4	B	1 1/2x1 x1 1/2	C	2 x2 x2	C	4 x4 x2 1/2	C										
1/2x1/2x3/8	B	1 x1 x 3/8	B	1 1/2x1 1/4x 1/2	B	2 x2 x2 1/2	C	4 x4 x3	C										
1/2x1/2x1/2	B	1 x1 x 1/2	B	1 1/2x1 1/4x 3/4	C	2 1/2x2 x1 1/2	C	4 x4 x3 1/2	C										
3/8x3/8x3/4	B	1 x1 x 3/4	C	1 1/2x1 1/4x1	C	2 1/2x2 x2	C	4 x4 x4	C										
1/2x3/8x3/4	B	1 x1 x1	C	1 1/2x1 1/4x1 1/4	C	2 1/2x1 1/2x2 1/2	C	4 1/2x4 1/2x4 1/2	C										
1/2x1/2x3/4	B	3/4x 3/4x1 1/4	C	1 1/2x1 1/4x1 1/2	C	2 1/2x2 x2 1/2	C	5 x5 x2	C										
3/4x1/4x3/4	B	1 x 3/4x1 1/4	C	1 1/2x1 1/2x 3/8	B	2 1/2x2 1/2x 3/4	C	5 x5 x3	C										
3/4x3/8x3/8	B	1 x1 x1 1/4	C	1 1/2x1 1/2x 1/2	B	2 1/2x2 1/2x1	C	5 x5 x4	C										
3/4x3/8x1/2	B	1 1/4x 3/8x1 1/4	B	1 1/2x1 1/2x 3/4	C	2 1/2x2 1/2x1 1/4	C	5 x5 x5	C										
3/4x3/8x3/4	B	1 1/4x 1/2x1	B	1 1/2x1 1/2x1	C	2 1/2x2 1/2x1 1/2	C	6 x6 x2	C										
3/4x1/2x1/4	B	1 1/4x 1/2x1 1/4	B	1 1/2x1 1/2x1 1/4	C	2 1/2x2 1/2x2	C	6 x6 x2 1/2	C										
3/4x1/2x3/8	B	1 1/4x 3/4x 3/4	C	1 1/2x1 1/2x1 1/2	C	2 1/2x2 1/2x2 1/2	C	6 x6 x3	C										
3/4x1/2x1/2	B	1 1/4x 3/4x1	C	1 x1 x2	C	2 1/2x2 1/2x3	C	6 x6 x4	C										
3/4x1/2x3/4	B	1 1/4x 3/4x1 1/4	C	1 1/4x1 1/4x2	C	2 x2 x3	C	6 x6 x6	C										
3/4x3/4x1/4	B	1 1/4x1 x 3/8	B	1 1/2x1 1/4x2	C	3 x2 x3	C	.....	..										
3/4x3/4x3/8	B	1 1/4x1 x 1/2	B	1 1/2x1 1/2x2	C	3 x2 1/2x2	C	.....	..										
3/4x3/4x1/2	B	1 1/4x1 x 3/4	C	2 x 3/8x2	B	3 x2 1/2x3	C	.....	..										
3/4x3/4x3/4	C	1 1/4x1 x1	C	2 x 1/2x2	B	3 x3 x 3/4	C	.....	..										

SERVICE TEES

3/8x3/8x 3/8	B	1 x 3/4x1	B	1 1/4x1 x1 1/4	C	1 1/2x1 1/4x1 1/2	C	2 1/2x2 1/2x2 1/2	C										
1/2x1/2x 1/2	B	1 x1 x 3/4	B	1 1/4x1 1/4x1 1/4	C	1 1/2x1 1/2x1 1/2	C	3 x2 1/2x3	C										
3/4x3/4x 3/4	B	1 x1 x1	C	1 1/4x1 x1	C	2 x1 1/2x2	C	3 x3 x3	C										
3/4x1/2x 3/4	B	1 x1 x1 1/4	C	1 1/2x 3/4x1 1/2	C	2 x2 x2	C	3 x3 x4	C										
3/4x3/4x1	B	1 1/4x 3/4x1 1/4	C	1 1/2x1 x1 1/2	C	2 1/2x2 x2 1/2	C	.....	..										

REDUCERS

1/4x1/8	A	3/4x3/8	B	1 1/4x 1/2	B	2 x 1/2	B	2 1/2x1 1/2	C	3 1/2x2	C	4x2 1/2	C						
3/8x1/8	A	3/4x1/2	B	1 1/4x 3/4	C	2 x 3/4	C	2 1/2x2	C	3 1/2x2 1/2	C	4x3	C						
3/8x1/4	B	1 x1/4	B	1 1/4x1	C	2 x1	C	3 x1	C	3 1/2x3	C	4x3 1/2	C						
1/2x1/8	A	1 x3/8	B	1 1/2x 1/2	B	2 x1 1/4	C	3 x1 1/4	C	4 x1	C	.....	..						
1/2x1/4	B	1 x1/2	B	1 1/2x 3/4	C	2 x1 1/2	C	3 x1 1/2	C	4 x1 1/4	C	.....	..						
1/2x3/8	B	1 x3/4	B	1 1/2x1	C	2 1/2x1	C	3 x2	C	4 x1 1/2	C	.....	..						
3/4x1/4	B	1 1/4x3/8	B	1 1/2x1 1/4	C	2 1/2x1 1/4	C	3 x2 1/2	C	4 x2	C	.....	..						

MALLEABLE IRON FITTINGS

LIST OF SIZES

REVISED CLASSIFICATION

Adopted June 5, 1907

CROSSES

1/4 x 1/4 x 1/4	B	3/4 x 3/4 x 1/2	B	1 1/4 x 1 x 1	C	1 1/2 x 1 1/2 x 1 1/2	C	3 x 3 x 3	C
3/8 x 3/8 x 1/4	B	3/4 x 3/4 x 3/4	B	1 1/4 x 1 1/4 x 3/8	B	2 x 2 x 1/2	B	3 1/2 x 3 1/2 x 3 1/2	C
3/8 x 3/8 x 3/8	B	1 x 1/2 x 3/8	B	1 1/4 x 1 1/4 x 1/2	C	2 x 2 x 3/4	C	4 x 4 x 2	C
1/2 x 3/8 x 3/8	B	1 x 3/4 x 3/8	B	1 1/4 x 1 1/4 x 3/4	C	2 x 2 x 1	C	4 x 4 x 3	C
1/2 x 1/2 x 1/4	B	1 x 3/4 x 1/2	B	1 1/4 x 1 1/4 x 1	C	2 x 2 x 1 1/4	C	4 x 4 x 4	C
1/2 x 1/2 x 3/8	B	1 x 3/4 x 3/4	B	1 1/4 x 1 1/4 x 1 1/4	C	2 x 2 x 1 1/2	C	5 x 5 x 5	C
1/2 x 1/2 x 1/2	B	1 x 1 x 3/8	B	1 1/2 x 1 1/4 x 1 1/4	C	2 x 2 x 2	C	6 x 6 x 6	C
3/4 x 3/8 x 1/2	B	1 x 1 x 1/2	B	1 1/2 x 1 1/2 x 1/2	B	2 1/2 x 2 1/2 x 2	C	.....	..
3/4 x 1/2 x 3/8	B	1 x 1 x 3/4	B	1 1/2 x 1 1/2 x 3/4	C	2 1/2 x 2 1/2 x 2 1/2	C	.....	..
3/4 x 1/2 x 1/2	B	1 x 1 x 1	B	1 1/2 x 1 1/2 x 1	C	3 x 3 x 2	C	.....	..
3/4 x 3/4 x 3/8	B	1 1/4 x 1 x 3/4	C	1 1/2 x 1 1/2 x 1 1/4	C	3 x 3 x 2 1/2	C	.....	..

CAPS

1/4	B	3/8	B	1/2	B	3/4	B	1	B	1 1/4	C	1 1/2	C	2	C	2 1/2	C	3	C	3 1/2	C	4	C	5	C	6	C

RETURN BENDS CLOSE AND MEDIUM PATTERNS—R. H.

1/2	B	3/4	B	1	B	1 1/4	C	1 1/2	C	2	C

RETURN BENDS CLOSE AND MEDIUM PATTERNS—R. AND L.

1/2	A	3/4	B	1	B	1 1/4	B	1 1/2	B	2	B

RETURN BENDS OPEN PATTERN—R. H.

1/2	B	3/4	B	1	B	1 1/4	C	1 1/2	C	2	C	2 1/2	C	3	C

RETURN BENDS OPEN PATTERN—R. AND L.

1/2	A	3/4	B	1	B	1 1/4	B	1 1/2	B	2	B	2 1/2	B	3	B

Y BENDS

1/2 x 1/2 x 1/2	B	1 1/2 x 1 1/4 x 1 1/4	B	2 x 1 1/4 x 1 1/2	B	2 x 2 x 1 1/4	B	2 x 2 x 1 1/2	B	3 x 3 x 2 1/2	B
3/4 x 3/4 x 3/4	B	1 1/2 x 1 1/4 x 1 1/2	B	2 x 1 1/4 x 2	B	2 x 2 x 1 1/2	B	3 x 3 x 3	B
1 x 1 x 1	B	1 1/2 x 1 1/2 x 1 1/4	B	2 x 1 1/2 x 1 1/4	B	2 x 2 x 2	B	4 x 4 x 4	B
1 1/4 x 1 1/4 x 1 1/4	B	1 1/2 x 1 1/2 x 1 1/2	B	2 x 1 1/2 x 1 1/2	B	2 1/2 x 2 1/2 x 2	B	.....	..
1 1/4 x 1 1/4 x 3/4	B	2 x 1 1/4 x 1 1/4	B	2 x 1 1/2 x 2	B	2 1/2 x 2 1/2 x 2 1/2	B	.....	..

60° Y BENDS

2	B	2 x 2 x 1 1/2	B

CROSS OVERS

1/2	B	3/4	B	1	B	1/2	B

CROSS OVER TEES

3/4	B	1	B	1 1/4	B	1 1/2	C

COUPLINGS R. AND L. AND R. H.

1/4	B	3/8	B	1/2	B	3/4	B	1	C	1 1/4	C	1 1/2	C	2	C	2 1/2	C	3	C				

OFFSETS

3/4	B	1	B	1 1/4	B	1/4	B	3/8	B	1/2	B	3/4	B	1	B	1 1/4	B	1 1/2	C	2	C		

LOCKNUTS

EXTENSION PIECES

3/8	B	1/2	B	3/4	B	1/4	B	3/8	B	1/2	B	3/4	B	1	B	1 1/4	B	1 1/2	B				

WASTE NUTS

MALLEABLE IRON FITTINGS

STANDARD CLASSIFICATION AND PRICE LIST

CLASSIFICATION

Class	A	B	C
Caps	1/8	1/4 to 1, inclusive	1 1/4 and Larger
Chandelier Hooks	.....	All Sizes	.....
" Loops	.....	" "	.....
Couplings, R. H.	1/8	1/4, 3/8, 1/2 and 3/4	1 and Larger
" R. and L.	1/8	1/4, 3/8, 1/2 " 3/4	1 " "
" Reducing	1/4 x 1/8 3/8 x 1/8 1/2 x 1/8	3/8 x 1/4 to 1 x 3/4	*1 1/4 and Larger
Crosses	.....	1/4 to 1, inclusive	1 1/4 and Larger
" Reducing	.....	1 and Smaller	*1 1/4 " "
Elbows	1/8 x 1/8 1/4 x 1/8 3/8 x 1/8 1/2 x 1/8	3/8 x 1/4 1/2 x 1/4 1/4, 3/8, 1/2 1/2 x 3/8	*3/4 and Larger
Elbows, 45°	.....	1/4 to 2, inclusive	2 1/2 and Larger
" 60°	.....	1 1/4 to 2	.....
" Drop	.....	All Sizes	.....
" R. and L.	1/4, 3/8	1/2, 3/4, 1	*1 1/4 and Larger
" Side Outlet	.....	All Sizes	.....
" Street	1/8	1/4, 3/8, 1/2, 3/4 3/4 x 1/2 1 x 1/2, 1 x 3/4	1 and Larger
" " 45°	3/8	1/2 and Larger	.....
Extension Pieces	.....	All Sizes	.....
Locknuts	1/8	1/4 to 1 1/4, inclusive	1 1/2 and Larger
Return Bends	1/4	3/8 to 1	1 1/4 " "
" " R. and L.	3/8 and 1/2	3/4 and Larger	.....
Tees	1/8 x 1/8 1/8 x 1/4 1/4 x 1/8 3/8 x 1/8	1/4, 3/8, 1/2 1/4 x 1/4 x 3/8 3/8 x 1/4 x 1/4 3/8 x 3/8 x 1/4 3/8 x 1/4 x 3/8 1/2 Reducing	*3/4 and Larger
Tees, Drop	.....	All Sizes	.....
" Four-Way	.....	" "	.....
" Service	.....	3/8, 1/2, 3/4 3/4 x 1/2 x 3/4 3/4 x 1, 1 x 3/4 x 1 1 x 1 x 3/4	1 and Larger
Wall Plates	.....	All Sizes	.....
Waste Nuts	.....	" "	.....
"Y" Bends	.....	" "	.....
" " 60°	.....	" "	.....

PRICE LIST

Class	A	B	C
Price, Black.....per pound	.40	.20	.13
" Galvanized "	.50	.28	.20

*Fittings in Class C having one or more outlets smaller than 3/4-inch will be charged in Class B.

Orders for less than 25 pounds of black fittings in Classes B and C will be charged at a uniform price of 20 cents per pound, and in Class A at 40 cents per pound.

RAILING FITTINGS

MALLEABLE IRON

No. 1
ELBOW

Plate E11691

No. 2
SIDE OUTLET ELBOW

Plate E11692

No. 3
TEE

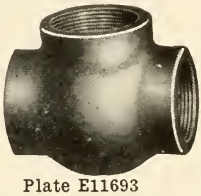


Plate E11693

No. 4
SIDE OUTLET TEE

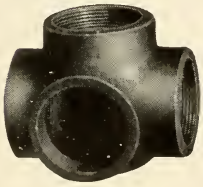


Plate E11694

No. 5
CROSS

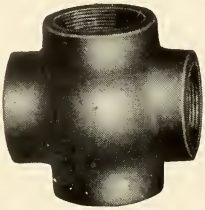


Plate E11695

No. 6
SIDE OUTLET CROSS

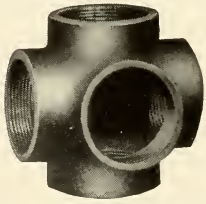


Plate E11696

No. 7
FLANGE

Plate E11697

No. 8
ACORN

Plate E11698

No. 9
FLOOR FLANGE

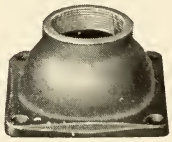


Plate E11699

Size.....inches	½	¾	1	1¼	1½	2	2½	3
Price, No. 1, Elbows .....each	.15	.18	.20	.35	.45	.72	1.00	1.50
" " 2, Side Outlet Elbows.. "	.20	.23	.25	.40	.50	.80	1.15	1.70
" " 3, Tees..... "	.20	.23	.25	.40	.50	.75	1.20	1.90
" " 4, Side Outlet Tees "	.30	.33	.35	.45	.55	.90	1.40	2.15
" " 5, Crosses ..... "	.30	.33	.35	.45	.58	1.00	1.50	2.25
" " 6, Side Outlet Crosses.. "	.35	.38	.40	.50	.65	1.35	1.75	2.60
" " 7, Flanges..... "	.14	.15	.15	.20	.28	.30	.50	.75
" " 8, Acorns..... "	.16	.18	.20	.25	.35	.90	....	....
" " 9, Floor Flanges.. "	.16	.18	.20	.40	.50	.90	1.00	1.50

In ordering railing fittings, describe kind wanted by number and size. Railing fittings will always be furnished with all openings tapped right-hand unless otherwise specified. Railing fittings tapped right and left or left-hand will be charged for at 15 per cent additional, net. For galvanized railing fittings, add 50 per cent to above list.

ADJUSTABLE RAILING FITTINGS

MALLEABLE IRON AND BRASS

ELBOW

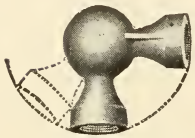


Plate E11701

TEE

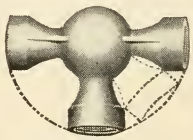


Plate E11702

FLANGE

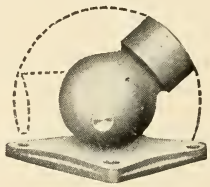


Plate E11703

CROSS

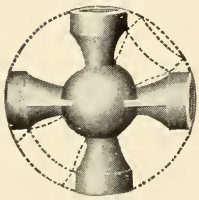


Plate E11704

STAIR TEE

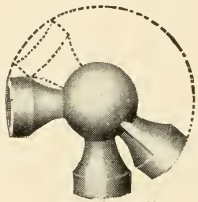


Plate E11705

STAIR CROSS

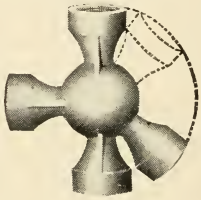


Plate E11706

By means of these fittings almost any angle may be obtained in railings for stairs and other places requiring deviation from horizontal or perpendicular lines, which would otherwise require special patterns to attain the same results.

MALLEABLE IRON

Size.....inches	1	1¼	1½	2
Price, Elbows.....each	1.10	1.25	1.70	2.25
" Tees..... "	1.30	1.50	2.00	2.50
" Flanges..... "	....	1.75	1.90	....
" Crosses..... "	1.50	1.75	2.35	2.75
" Stair Tees..... "	1.30	1.60	2.15	2.50
" " Crosses..... "	1.50	1.85	2.50	2.75

Add 50 per cent for galvanized.

Furnished tapped right hand, add 15 per cent net when ordered otherwise.

FINISHED BRASS

Size.....inches	1	1¼	1½	2
Price, Elbows.....each	2.75	3.15	4.25	5.65
" Tees..... "	3.25	3.75	5.00	6.25
" Crosses..... "	3.75	4.40	5.90	6.90
" Stair Tees..... "	3.25	4.00	5.40	6.25
" " Crosses..... "	3.75	4.65	6.25	6.90

Right and left and left-hand fittings, 25 per cent extra.

STANDARD CAST IRON FITTINGS

ELBOWS

STRAIGHT

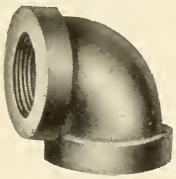


Plate E11711

REDUCING

Plate E11712

STRAIGHT SIZES

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black..each	.05	.05	.06	.08	.10 1/2	.16	.20	.28	.50	.75
" Galv.. "	.10	.10	.12	.16	.21	.32	.40	.56	1.00	1.50
" Pitched "	....	....	....	.10	.13	.20	.25	.35	.65	1.00
Size.....inches	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Price, Black..each	1.05	1.20	1.75	2.00	2.75	4.70	6.75	9.00	13.50	20.00
" Galv .. "	2.10	2.40	3.50	4.00	5.50	9.40	13.50	18.00	27.00	40.00
" Pitched "	1.30	1.50	....	....	....	....	....	....	....	....

REDUCING

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Black.each	.06	.07	.09	.12	.18	.23	.32	.60	.85	1.20
" Galv.. "	...	.14	.18	.24	.36	.46	.64	1.20	1.70	2.40
Size.....inches	4	4 1/2	5	6	7	8	9	10	12	....
Price, Black.each	1.40	2.00	2.30	3.15	5.40	7.75	10.50	15.50	23.00	....
" Galv.. "	2.80	4.00	4.60	6.30	10.80	15.50	21.00	31.00	46.00	....

RIGHT AND LEFT

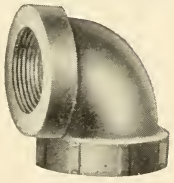


Plate E11713

45°

Plate E11714

RIGHT AND LEFT

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black.....each	.06	.06	.07	.09	.12	.18	.23	.32	.60	.85

The ribs in the band of right and left elbows denote the left-hand thread.

45°

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Black. each	.06	.07	.10	.12	.19	.24	.34	.60	.90	1.25
" Galv.. "	.12	.14	.20	.24	.38	.48	.68	1.20	1.80	2.50
Size.....inches	4	4 1/2	5	6	7	8	9	10	12	....
Price, Black. each	1.45	2.20	2.50	3.45	5.90	8.50	11.25	17.00	25.00	....
" Galv.. "	2.90	4.40	5.00	6.90	11.80	17.00	22.50	34.00	50.00	....

STANDARD CAST IRON FITTINGS

TEES

STRAIGHT

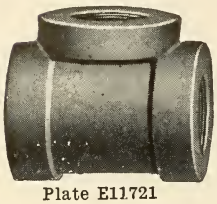


Plate E11721

REDUCING ON RUN

Plate E11722

REDUCING ON OUTLET

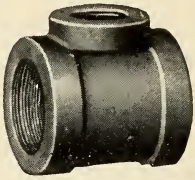


Plate E11723

STRAIGHT SIZES

Size ..... inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Black ..... each	.08	.08	.09	.12	.15	.23	.29	.41	.73	1.10
" Galvanized ..... "	.16	.16	.18	.24	.30	.46	.58	.82	1.46	2.20

Size ..... inches	3½	4	4½	5	6	7	8	9	10	12
Price Black ..... each	1.50	1.75	2.55	3.00	4.00	6.80	9.75	13.00	19.50	29.00
" Galvanized ..... "	3.00	3.50	5.10	6.00	8.00	13.60	19.50	26.00	39.00	58.00

REDUCING

Size ..... inches	⅜	½	¾	1	1¼	1½	2	2½	3	3½
Price, Black ..... each	.09	.10	.14	.17	.27	.33	.47	.83	1.25	1.75
" Galvanized ..... "	.18	.20	.28	.34	.54	.66	.94	1.66	2.50	3.50

Size ..... inches	4	4½	5	6	7	8	9	10	12	....
Price, Black ..... each	2.00	2.95	3.50	4.60	7.80	11.25	15.00	22.50	33.50	....
" Galvanized ..... "	4.00	5.90	7.00	9.20	15.60	22.50	30.00	45.00	67.00	....

SIDE OUTLET ELBOW

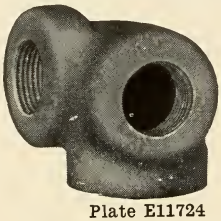


Plate E11724

SIDE OUTLET TEE

Plate E11725

SIDE OUTLET ELBOWS, STRAIGHT SIZES

Size..inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price..each	.18	.24	.30	.48	.60	.84	1.50	2.25	3.15	3.60	5.25	6.00	8.25

SIDE OUTLET ELBOWS, REDUCING

Size..inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price..each	.21	.28	.35	.55	.68	.96	1.70	2.58	3.60	4.00	6.00	6.90	9.45

SIDE OUTLET TEES, STRAIGHT SIZES

Size..inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price..each	.27	.36	.45	.70	.90	1.25	2.25	3.25	4.50	5.25	7.65	9.00	12.00

SIDE OUTLET TEES, REDUCING

Size..inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price..each	.31	.42	.52	.80	1.00	1.45	2.58	3.73	5.15	6.00	8.80	10.35	13.80

STANDARD CAST IRON FITTINGS

CROSSES

STRAIGHT

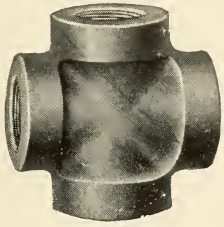


Plate E11731

REDUCING

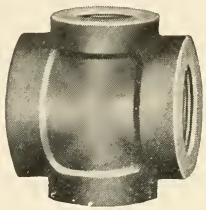


Plate E11732

STRAIGHT SIZES

Size.....inches	½	¾	1	1¼	1½	2	2½	3	3½
Price, Black..... each	.16	.22	.27	.42	.53	.75	1.30	2.00	2.70
" Galvanized... "	.32	.44	.54	.84	1.06	1.50	2.60	4.00	5.40

Size.....inches	4	4½	5	6	7	8	9	10	12
Price, Black..... each	3.15	4.60	5.50	7.25	12.25	17.50	23.50	35.00	52.50
" Galvanized... "	6.30	9.20	11.00	14.50	24.50	35.00	47.00	70.00	105.00

REDUCING

Size.....inches	½	¾	1	1¼	1½	2	2½	3	3½
Price, Black..... each	.18	.25	.30	.46	.60	.83	1.45	2.20	3.00
" Galvanized... "	.36	.50	.60	.92	1.20	1.66	2.90	4.40	6.00

Size.....inches	4	4½	5	6	7	8	9	10	12
Price, Black..... each	3.50	5.10	6.00	8.00	13.50	19.25	26.00	38.50	58.00
" Galvanized... "	7.00	10.20	12.00	16.00	27.00	38.50	52.00	77.00	116.00

"Y" BRANCHES—STRAIGHT SIZES

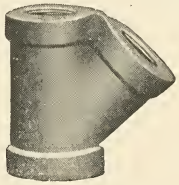


Plate E11733

Size..... inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Black.. each	.20	.20	.20	.28	.34	.54	.66	.94	1.66	2.50
" Galv... "	....	....	.40	.56	.68	1.08	1.32	1.88	3.32	5.00

Size.....inches	3½	4	4½	5	6	7	8	9	10	12
Price, Black.. each	3.50	4.00	5.90	7.00	9.20	15.60	22.50	30.00	45.00	67.00
" Galv... "	7.00	8.00	11.80	14.00	18.40	31.20	45.00	67.50	90.00	134.00

"Y" BRANCHES—REDUCING

Size..... inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Black.....each	.23	.23	.23	.33	.40	.62	.76	1.08	1.90	2.90
" Galvanized.. "	....	....	.46	.66	.80	1.24	1.52	2.16	3.80	5.80

Size..... inches	3½	4	4½	5	6	7	8	9	10	12
Price, Black.....each	4.00	4.60	6.80	8.00	10.60	18.00	26.00	35.00	51.75	77.00
" Galvanized.. "	8.00	9.20	13.60	16.00	21.20	36.00	52.00	78.00	103.50	154.00

STANDARD CAST IRON FITTINGS

RETURN BENDS

CLOSE PATTERN

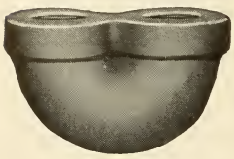


Plate E11741

OPEN PATTERN

Plate E11742

WIDE PATTERN

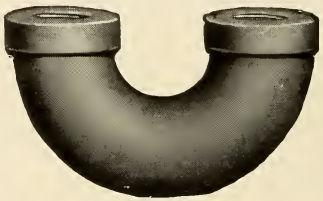


Plate E11743

Close pattern return bends will not make up parallel coils, as the distance, center to center, of two adjacent bends is greater than the center to center of openings of a single bend.

CLOSE PATTERN

Size.....inches	½	¾	1	1¼	1½	2	2½	3	4
Center to Center....inches	1¼	1½	1¾	2¼	2½	3¼	3¾	4¼	6
Price, R. H., Black....each	.18	.20	.22	.28	.40	.57	1.20	1.70	5.00
" " Galv..... "	.36	.40	.44	.56	.80	1.14	2.40	3.40	10.00
" R. & L., Black.. "	.21	.23	.26	.33	.46	.66	1.40	1.95	5.25
" L. H., Black.... "	.21	.23	.26	.33	.46	.66	1.40	1.95	5.25

CLOSE PATTERN PITCHED

Suitable for Coils as per Table Below

Size.....inches	1	1	1	1	1	1¼	1¼	1¼
Length of Coil.....feet	3	4	5	6	8	4	5	6
Price, R. H.....each	.26	.26	.26	.26	.26	.33	.33	.33

All right and left pitched return bends are made to order. One-inch return bends for coils longer than 8 feet are tapped straight. Pitched return bends have length of coil marked on them.

OPEN PATTERN

Size.....inches	¾	1	1¼	1½	2	2½	3	4
Center to Center.....inches	1⅞	2⅜	3	3½	4½	5½	6½	7½
Price, R. H., Black..... "	.26	.30	.40	.55	.80	1.35	2.20	6.50
" " Galvanized.. "	.52	.60	.80	1.10	1.60	2.70	4.40	10.00
" R. & L., Black..... "	.30	.35	.46	.64	.92	1.55	2.50	....

WITH BACK OUTLET—NOT ILLUSTRATED

Size.....inches	¾	1	1¼	1½	2	2½	3
Center to Center.....inches	1⅞	2¼	2¼	2½	3¼	3¾	4¼
Price, Right-hand, Black.....each	.38	.42	.60	.80	1.15	2.00	3.00
" " " Galvanized.... "	.76	.84	1.20	1.60	2.30	4.00	6.00
" Right and Left, Black..... "	.42	.48	.70	.95	1.30	2.30	3.50

WIDE PATTERN

Size.....inches	1	1	1	1	1	1¼	1¼	1½
Center to Center.....inches	3	4	5	6	8	4	6	4⅞
Price, Black.....each	.45	.50	.60	.75	1.00	1.00	1.25	1.30
" Galvanized..... "	.80	.90	1.10	1.30	1.60	1.75	2.00	2.30

Size.....inches	1½	1½	2	2	2	2	4	....
Center to Center.....inches	6	8	4⅞	6	7	8	11	....
Price, Black.....each	1.60	2.00	1.75	2.00	3.00	3.50	7.50	....
" Galvanized..... "	2.60	3.25	3.00	3.25	4.50	5.00	11.00	....

CAST IRON FITTINGS

ECCENTRIC REDUCING COUPLING

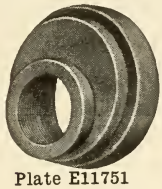


Plate E11751

ECCENTRIC BUSHING

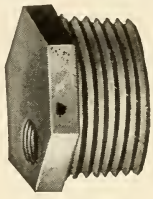


Plate E11752

ECCENTRIC REDUCING COUPLINGS

Size..inches	1¼	1½	2	2½	3	3½	4	4½	5	6	8
Price...each	.55	.72	1.00	1.50	2.40	3.00	4.00	5.00	6.00	8.00	11.00

ECCENTRIC BUSHINGS

Reducing Two or More Sizes

Size.....inches	2	2½	3	3½	4	4½	5
Price.....each	.27	.42	.60	.80	1.00	1.50	1.85
Size.....inches	6	7	8	9	10	12	14
Price.....each	2.50	3.75	5.50	6.50	7.50	10.00	25.00

All eccentric bushings, right or left, or left-hand, double above prices.

ECCENTRIC TEES

ECCENTRIC ON RUN

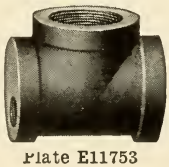


Plate E11753

ECCENTRIC ON OUTLET

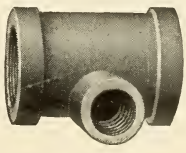


Plate E11754

These fittings are designed to prevent the accumulation and lodgement of condensation. Orders must be accompanied with sketch, showing position in which the fittings are to be placed. Prices on application.

OFFSETS

Plate E11755

Size.....inches	¾	1	1¼	1½	2	2½
Price, to Offset 4 inches..each	.45	.70	1.00	1.20	1.80	3.00
" " " 6 " .."	.67	1.05	1.50	1.80	2.70	4.50
" " " 8 " .."	.90	1.40	2.00	2.40	3.60	6.00
Size.....inches	3	3½	4	5	6	....
Price, to Offset 4 inches..each	4.00	5.00	6.00	8.00	10.00	....
" " " 6 " .."	6.00	7.50	9.00	12.00	15.00	....
" " " 8 " .."	8.00	10.00	12.00	16.00	20.00	....

STANDARD CAST IRON FITTINGS

REDUCER

Plate E11761

CAP

Plate E11762

LOCKNUT

Plate E11763

Size.....inches	⅜	½	¾	1	1¼	1½	2	2½	3	3½
Price, Caps, Black.....each	....	....	....	....	....	....	.26	.40	.54	.75
" Locknuts, Black... "	....	....	....	....	....	....	.25	.27	.34	.47
" " Galvanized. "	....	....	....	....	....	....	....	.54	.68	.94

Size.....inches	4	4½	5	6	7	8	9	10	12	....
Price, Reducers, Black...each	1.35	1.85	2.00	2.70	5.35	6.75	8.35	10.00	15.00	....
" " Galvanized. "	....	3.70	4.00	5.40	10.70	13.50	16.70	20.00	30.00	....
" Caps, Black..... "	.87	1.05	1.20	1.55	2.50	2.85	4.75	5.50	7.00	....
" " Galvanized. "	1.74	2.10	2.40	3.10	5.00	5.70	9.50	11.00	14.00	....
" Locknuts, Black... "	.64	.85	.90	1.30	1.70	2.35	2.70	3.00	4.00	....
" " Galvanized. "	1.28	1.70	1.80	2.60	3.40	4.70	5.40	6.00	8.00	....

BUSHING

Plate E11764

PLUG

Plate E11765

COUNTERSUNK PLUG

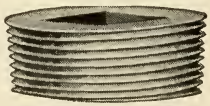


Plate E11766

Size.....inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, Bushings, Black ...each	....	....	.04	.04	.06	.05	.07	.09	.14	.21	.30
" " Galvanized "	....	....	.08	.08	.10	.12	.14	.18	.28	.42	.60
" Plugs, Black..... "	.02	.02	.02	.02	.03	.04	.05	.07	.10	.18	.25
" " Galvanized .. "	....	.04	.04	.04	.06	.08	.10	.14	.20	.36	.50
" " Countersunk. "	....	....	....	.04	.06	.08	.09	.11	.15	.30	....

Size.....inches	3½	4	4½	5	6	7	8	9	10	12	....
Price, Bushings, Black ...each	.40	.50	.75	.93	1.25	1.87	2.75	3.25	3.75	5.00	....
" " Galvanized "	.80	1.00	1.50	1.85	2.50	3.75	5.50	6.50	7.50	10.00	....
" Plugs, Black..... "	.38	.42	.65	.88	1.20	1.85	2.75	3.25	3.75	5.00	....
" " Galvanized .. "	.76	.84	1.30	1.75	2.40	3.70	5.50	6.50	7.50	10.00	....

FLANGE UNIONS

FACED, NO GASKETS

CAST IRON

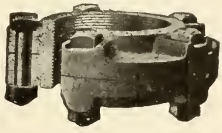


Plate E11771

MALLEABLE IRON

Plate E11772

CAST IRON

Size ..... inches	½	¾	1	1¼	1½	2	2½
Diameter of Flanges ..... inches	3	3 5/16	3 5/8	4 1/8	4 5/8	5 1/4	6
Number of Bolts in Each	3	3	3	4	4	4	4
Price, Black ..... each	.40	.46	.52	.64	.78	1.00	1.25
" Galvanized ..... "	.80	.92	1.04	1.28	1.56	2.00	2.50

Size ..... inches	3	3½	4	4½	5	6	7
Diameter of Flanges ..... inches	6¾	6 7/8	8	8¾	9 7/16	10 11/16	12
Number of Bolts in Each	4	4	5	5	5	6	7
Price, Black ..... each	1.50	1.80	2.10	2.70	3.15	3.95	5.50
" Galvanized ..... "	3.00	3.60	4.20	5.40	6.30	7.90	11.00

Size ..... inches	8	9	10	12	14	15	16
Diameter of Flanges ..... inches	13 3/8	14¼	16	18¼	20 5/8	20 5/8	23
Number of Bolts in Each	8	9	10	12	14	14	16
Price, Black ..... each	7.00	10.00	11.50	16.00	28.00	35.00	60.00
" Galvanized ..... "	14.00	20.00	23.00	32.00	56.00	70.00	.....

CAST IRON, EXTRA HEAVY

Size ..... inches	½	¾	1	1¼	1½	2	2½	3	3½
Diameter of Flanges ..... inches	3	3¼	3 5/8	4 1/8	4 5/8	5 3/8	6	6¾	7½
Number of Bolts in Each	3	4	4	4	4	5	5	6	6
Price ..... each	.60	.70	.80	1.00	1.15	1.50	1.90	2.25	2.70

Size ..... inches	4	4½	5	6	7	8	9	10	12
Diameter of Flanges ..... inches	8	8¾	9 3/8	10 7/8	12	13¼	14 3/8	15 3/4	18
Number of Bolts in Each	7	8	8	9	10	10	12	12	14
Price ..... each	3.15	4.00	4.75	6.00	8.25	10.50	15.00	17.25	24.00

MALLEABLE IRON

Size ..... inches	¾	1	1¼	1½	2	2½	3
Diameter of Flanges ..... inches	2 7/8	3¼	3 3/4	4 5/8	5½	6	6¾
Number of Bolts in Each	3	4	4	4	4	4	4
Price, Black ..... each	1.40	1.60	2.00	2.50	3.00	3.50	4.40
" Galvanized ..... "	2.80	3.20	4.00	5.00	6.00	7.00	8.80

Size ..... inches	3½	4	4½	5	6	8	....
Diameter of Flanges ..... inches	7½	8	8 5/8	9 3/8	10 5/8	13 1/8	....
Number of Bolts in Each	4	5	5	5	6	7	....
Price, Black ..... each	5.25	6.00	7.00	8.00	9.00	18.00	....
" Galvanized ..... "	10.50	12.00	14.00	16.00	18.00	36.00	....

CAST IRON FITTINGS

LIST OF STANDARD SIZES

ELBOWS

¼	1 x ½	1½x ¾	3	4 x2½	8x6
⅜	1¼	2	3 x2½	4½	9
½	1¼x1	2 x1½	3 x2	5	10
½x⅜	1¼x ¾	2 x1¼	3½	5 x4	12
¾	1¼x ½	2 x1	3½x3	6	....
¾x½	1½	2½	4	6 x5	....
1	1½x1¼	2½x2	4 x3½	7	....
1 x¾	1½x1	2½x1½	4 x3	8	....

45° ELBOWS

⅜	1	2	3½	5	8	12
½	1¼	2½	4	6	9	....
¾	1½	3	4½	7	10	....

RIGHT AND LEFT ELBOWS

¼	½	1	1½	2½
⅜	¾	1¼	2	3

TEES

Tees reducing on the outlet are described thus:

are read 1½x1.

Tees reducing on the run are described thus:

are read 1½x1¼x1.

Tees with both ends of run the same size, with the outlet larger, thus:

are known as bullhead, and are read 1x2.

The largest opening either in run or branch determines the size of the fittings.

¼	1 x ¾x ½	1¼x ¾x1	1½x1 x1¼	2x1½x2
⅜	1 x ½x1	1¼x ¾x ¾	1½x1 x1	2x1½x1½
½	1 x ½x ¾	1¼x ½x1¼	1½x1 x ¾	2x1½x1¼
½x ½x ⅜	1 x ½x ½	1¼x1¼x1½	1½x ¾x1	2x1½x1
½x ½x ¾	1 x ⅜x1	1¼x1 x1½	1½x ¾x1½	2x1½x ¾
¾	1 x1 x1¼	1¼x ¾x1½	1½x ¾x1¼	2x1½x ½
¾x ¾x ½	1 x ¾x1¼	1¼x1½x2	1½x ½x1¼	2x1¼x2
¾x¾x ⅜	1 x1 x1½	1½	1½x1½x2	2x1¼x1½
¾x ½x ¾	1 x1 x2	1½x1½x1¼	1½x1¼x2	2x1¼x1¼
¾x ½x ½	1¼	1½x1½x1	1½x1 x2	2x1¼x1
¾x ¾x1	1¼x1¼x1	1½x1½x ¾	1½x ½x1½	2x1¼x ¾
¾x ¾x1¼	1¼x1¼x ¾	1½x1½x ½	2	2x1 x2
1	1¼x1¼x ½	1½x1¼x1½	2 x2 x1½	2x1 x1½
1 x1 x ¾	1¼x1 x1¼	1½x1¼x1¼	2 x2 x1¼	2x1 x1¼
1 x1 x ½	1¼x1 x1	1½x1¼x1	2 x2 x1	2x1 x1
1 x1 x ⅜	1¼x1 x ¾	1½x1¼x ¾	2 x2 x ¾	.....
1 x ¾x1	1¼x1 x ½	1½x1¼x ½	2 x2 x ½	.....
1 x ¾x ¾	1¼x ¾x1¼	1½x1 x1½	2 x1½x2½	.....

CAST IRON FITTINGS

LIST OF STANDARD SIZES

The Largest Opening Either in Run or Branch Determines the Size of the Fittings

TEES—CONTINUED

2 x ¾x2
2 x ½x2
2 x2 x2½
2 x2 x3
2½
2½x2½x2
2½x2½x1½
2½x2½x1¼
2½x2½x1
2½x2½x ¾
2½x2 x2½
2½x2 x2
2½x2 x1½
2½x2 x1¼
2½x2 x1
2½x1½x2½
2½x1½x2
2½x1½x1½
2½x1½x1¼
2½x1¼x2½
2½x1¼x2
2½x1 x2½
2½x ¾x2½
2½x2½x3
2½x2 x3
3
3 x3 x2½
3 x3 x2
3 x3 x1¼
3 x3 x1
3 x3 x ¾
3 x2½x3
3 x2½x2½
3 x2½x2

3 x2½x1½
3 x2½x1¼
3 x2½x1
3 x2 x3
3 x2 x2½
3 x2 x2
3 x2 x1½
3 x2 x1¼
3 x2 x1
3 x1½x3
3 x1½x2½
3 x1½x2
3 x1¼x3
3 x1 x3
3 x3 x4
3 x3 x3½
3½
3½x3½x3
3½x3½x2½
3½x3½x2
3½x3½x1½
3½x3½x1¼
3½x3½x1
3½x3 x3
3½x3 x2½
3½x3 x2
3½x3 x1½
3½x2½x3
3½x2½x2½
3½x2 x3½
3½x1½x3½
3½x1¼x3½
3½x1 x3½

4
4 x4 x3½
4 x4 x3
4 x4 x2½
4 x4 x2
4 x4 x1½
4 x4 x1¼
4 x4 x1
4 x4 x ¾
4 x3½x3½
4 x3½x3
4 x3½x2½
4 x3 x4
4 x3 x3
4 x3 x2½
4 x3 x2
4 x3 x1½
4 x3 x1¼
4 x2½x4
4 x2½x3
4 x2½x2½
4 x2½x2
4 x2 x4
4 x2 x3
4 x2 x2½
4 x2 x2
4 x2 x1½
4 x1½x4
4 x1¼x4
4 x1 x4
4 x4 x5
4 x4 x6
4½
4½x4½x4

4½x4½x3½
4½x4½x3
4½x4½x2½
4½x4½x2
5
5 x5 x4
5 x5 x3½
5 x5 x3
5 x5 x2½
5 x5 x2
5 x5 x1½
5 x5 x1¼
5 x4 x5
5 x4 x4
5 x4 x3
5 x4 x2½
5 x4 x2
5 x3 x5
5 x3 x4
5 x3 x3
5 x3 x2½
5 x3 x2
5 x2 x5
5 x5 x6
6
6 x6 x5
6 x6 x4
6 x6 x3½
6 x6 x3
6 x6 x2½
6 x6 x2
6 x5 x6

6x 5 x 5
6x 4 x 6
6x 3 x 6
6x 6 x 7
6x 6 x 8
6x 2½x 6
7
7x 7 x 6
7x 7 x 5
7x 7 x 4
7x 7 x 3
7x 6 x 6
8
8x 8 x 6
8x 8 x 5
8x 8 x 4
8x 8 x 3
8x 8 x 2½
8x 8 x 2
8x 6 x 8
8x 6 x 6
8x 4 x 8
9
10
10x10 x 8
10x10 x 6
10x10 x 5
10x10 x 4
10x 8 x 8
12
12x12 x10
12x12 x 8
12x12 x 6
12x12 x 4

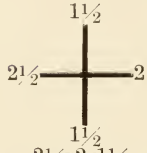
CAST IRON FITTINGS

LIST OF STANDARD SIZES

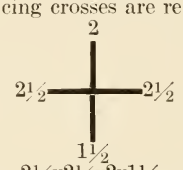
The Largest Opening Either in Run or Branch Determines the Size of the Fittings

CROSSES

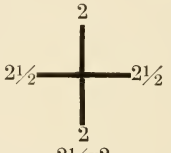
Reducing crosses are read thus:



2½x2x1½



2½x2½x2x1½



2½x2

½	1½x1¼x1 x1	3 x3 x1¼x1¼	5x5x3 x3
¾	2	3 x3 x1 x1	5x5x2½x2½
¾x ¾x ½x ½	2 x2 x1¼x1¼	3 x3 x ¾x ¾	5x5x2 x2
1	2 x2 x1 x1	3½	6
1 x1 x ¾x ¾	2 x2 x ¾x ¾	3½x3½x3 x3	6x6x5 x5
1 x1 x ½x ½	2½	3½x3½x2½x2½	6x6x4 x4
1¼	2½x2½x2 x2	3½x3½x2 x2	6x6x3 x 3
1¼x1¼x1 x1	2½x2½x1½x1½	4	6x6x2½x 2½
1¼x1¼x ¾x ¾	2½x2½x1¼x1¼	4 x4 x3½x3½	6x6x2 x 2
1¼x1¼x ½x ½	2½x2½x1 x1	4 x4 x3 x3	7
1½	2½x2½x ¾x ¾	4 x4 x2½x2½	8
1½x1½x1¼x1¼	3	4 x4 x2 x2	8x8x6 x 6
1½x1½x1 x1	3 x3 x2½x2½	4½	9
1½x1½x ¾x ¾	3 x3 x2 x2	5	10
1½x1½x ½x ½	3 x3 x1½x1½	5 x5 x4 x4	12

OFFSETS

To Offset 4, 6 and 8 Inches

¾	1¼	2	3	4	6
1	1½	2½	3½	5	.....

REDUCING COUPLINGS

4½x4	5x3	6x4	6x2	8 x 4
5 x4½	5x2½	6x3½	7x6	10x 8
5 x4	5x2	6x3	8x7	10x 6
5 x3½	6x5	6x2½	8x6	12x10

ECCENTRIC REDUCING COUPLINGS

1¼x ¾	2½x2	3½x3	5x3½	6x2½
1¼x1	2½x1½	4 x3½	5x3	7x6
1½x1	2½x1¼	4 x3	5x2½	8x7
1½x1¼	3 x2½	4 x2½	5x2	8x6
2 x ¾	3 x2	4 x2	6x5	8x5
2 x1	3 x1½	4½x4	6x4	.....
2 x1¼	3½x1¼	5 x4½	6x3½	.....
2 x1½	3½x2	5 x4	6x3	.....

CAPS

1	1½	2½	3½	4½	6	8	12	.....
1¼	2	3	4	5	7	10	.....	.....

PLUGS

⅛	¾	2	4	7	12
¼	1	2½	4½	8	.....
⅛	1¼	3	5	9	.....
½	1½	3½	6	10	.....

CAST IRON FITTINGS

LIST OF STANDARD SIZES

LOCKNUTS

2½	3½	4½	6	8	10
3	4	5	7	9	12

"Y" BRANCHES

½	1¼	2½	4	7	10
¾	1½	3	5	8	12
1	2	3½	6	9	.....

RETURN BENDS

Close and Open Pattern

½	1	1½	2½	3½
¾	1¼	2	3	4

BUSHINGS

¼x ⅛M	1½x1	3½x3	5x4	7x 2½
⅜x ⅛M	1½x ¾	3½x2½	5x3½	7x 2
⅜x ¼M	1½x ½	3½x2	5x3	8x 7
½x ⅜M	2 x1½M	3½x1½	5x2½	8x 6
½x ¼M	2 x1¼	3½x1¼	5x2	8x 5
¾x ½M	2 x1	3½x1	6x5	8x 4
¾x ⅜	2 x ¾	4 x3½	6x4½	8x 3
¾x ¼	2 x ½	4 x3	6x4	9x 8
1 x ¾M	2½x2	4 x2½	6x3½	9x 7
1 x ½	2½x1½	4 x2	6x3	9x 6
1 x ⅜	2½x1¼	4 x1½	6x2½	10x 8
1 x ¼	2½x1	4 x1¼	6x2	10x 6
1¼x1 M	2½x ¾	4 x1	7x6	12x10
1¼x ¾	3 x2½	4½x4	7x5	12x 8
1¼x ½	3 x2	4½x3½	7x4½	12x 6
1¼x ⅜	3 x1½	4½x3	7x4	.....
1¼x ¼	3 x1¼	4½x2½	7x3½	.....
1½x1¼M	3 x1	5 x4½	7x3	.....

Sizes marked "M" are made only in malleable iron.

FACED BUSHINGS

⅜x ¼M	1½x1¼M	3 x2½M	4 x2
½x ⅜M	1½x1	3 x2	4½x4 M
¾x ½M	1½x ¾	3½x3 M	5 x4½
¾x ⅜	2 x1½M	3½x2½	5 x4
1 x ¾M	2 x1¼	3½x2	5 x3
1 x ½	2 x1	4 x3½M	6 x5
1¼x1 M	2½x2 M	4 x3	6 x4
1¼x ¾	2½x1½	4 x2½	6 x3

Sizes marked M are made only in malleable iron.

CAST IRON LONG TURN FITTINGS

SCREWED, WITH FLAT BAND

For Steam Working Pressures up to 125 Pounds
For Water Working Pressures up to 175 Pounds

No. 1
WATER ELBOW

Plate E11821

No. 2 DOUBLE BRANCH
WATER ELBOW

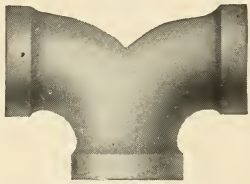


Plate E11822

No. 1 WATER ELBOWS

Size.....inches	1	1¼	1½	2	2½	3	3½	4
Price, Black.....each	.32	.40	.55	.80	1.20	2.25	3.25	3.50
" Galvanized ..... "	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00

Size.....inches	4½	5	6	7	8	9	10	12
Price, Black.....each	5.50	6.50	8.75	13.00	17.00	25.50	30.00	40.00
" Galvanized ..... "	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00

No. 2 DOUBLE BRANCH WATER ELBOWS

Size.....inches	1	1¼	1½	2	2½	3	3½	4
Price, Black.....each	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00
" Galvanized ..... "	1.28	1.60	2.20	3.20	4.80	9.00	13.00	14.00

Size.....inches	4½	5	6	7	8	9	10	12
Price, Black.....each	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00
" Galvanized ..... "	22.00	26.00	35.00	52.00	68.00	102.00	120.00	160.00

No. 3 WATER TEES

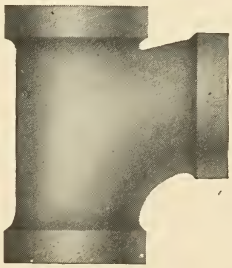


Plate E11823

Size.....inches	1	1¼	1½	2	2½	3	3½	4
Price, Black.....each	.48	.60	.82	1.20	1.80	3.40	4.90	5.25
" Galvanized ..... "	.96	1.20	1.64	2.40	3.60	6.80	9.80	10.50

Size.....inches	4½	5	6	7	8	9	10	12
Price, Black.....each	8.25	9.75	13.25	19.50	25.50	38.00	45.00	60.00
" Galvanized ..... "	16.50	19.50	26.50	39.00	51.00	76.00	90.00	120.00

Reducing sizes, bushed in the sand, can be obtained from the factory. For list prices add 50 per cent to the above.

CAST IRON LONG TURN FITTINGS

SCREWED, WITH FLAT BAND

For Steam Working Pressures up to 125 Pounds
For Water Working Pressures up to 175 Pounds

WITH FLAT BAND

No. 4
WATER CROSS

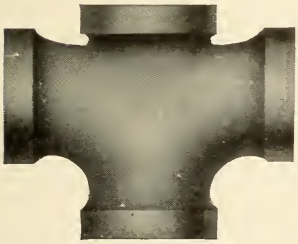


Plate E11831

No. 5 WATER TEE
DOUBLE SWEEP

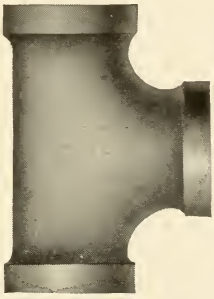


Plate E11832

No. 6
SWEEP CROSS

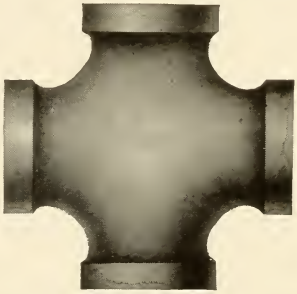


Plate E11833

No. 4 WATER CROSSES

Size.....inches	1	1¼	1½	2	2½	3	3½	4
Price, Black.....each	.85	1.10	1.50	2.15	3.20	6.00	8.75	9.50
" Galvanized..... "	1.70	2.20	3.00	4.30	6.40	12.00	17.50	19.00
Size.....inches	4½	5	6	7	8	9	10	12
Price, Black.....each	15.00	17.50	24.00	35.00	45.00	68.00	80.00	107.00
" Galvanized..... "	30.00	35.00	48.00	70.00	90.00	136.00	160.00	214.00

No. 5 DOUBLE SWEEP WATER TEES

Size.....inches	1	1¼	1½	2	2½	3	3½	4
Price, Black.....each	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00
" Galvanized..... "	1.28	1.60	2.20	3.20	4.80	9.00	13.00	14.00
Size.....inches	4½	5	6	7	8	9	10	12
Price, Black.....each	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00
" Galvanized..... "	22.00	26.00	35.00	52.00	68.00	102.00	120.00	160.00

No. 6 SWEEP CROSSES

Size.....inches	1	1¼	1½	2	2½	3	3½	4
Price, Black.....each	.85	1.10	1.50	2.15	3.20	6.00	8.75	9.50
" Galvanized..... "	1.70	2.20	3.00	4.30	6.40	12.00	17.50	19.00
Size.....inches	4½	5	6	7	8	9	10	12
Price, Black.....each	15.00	17.50	24.00	35.00	45.00	68.00	80.00	107.00
" Galvanized..... "	30.00	35.00	48.00	70.00	90.00	136.00	160.00	214.00

Reducing sizes, bushed in the sand, can be obtained from factory. For list prices add 50 per cent to above.

CAST IRON FITTINGS

EXTRA HEAVY

For 250 Pounds Working Pressure

ELBOW

Plate E11841

45° ELBOW

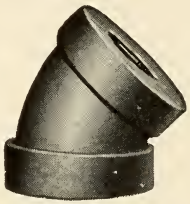


Plate E11842

TEE

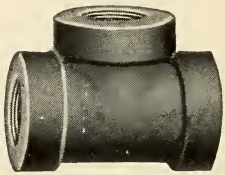


Plate E11843

Size.....inches	½	¾	1	1¼	1½	2	2½	3	3½
Elbows.....each	.25	.30	.35	.45	.60	.75	1.25	2.00	2.75
" Reducing.... "	.35	.40	.45	.55	.75	.95	1.55	2.50	3.40
" 45°..... "	.35	.40	.45	.55	.70	.90	1.50	2.50	3.50
Tees..... .... "	.40	.45	.55	.70	.90	1.15	1.80	3.00	4.25
" Reducing..... "	.55	.60	.70	.90	1.15	1.40	2.25	3.75	5.30

Size.....inches	4	4½	5	6	7	8	9	10	12
Elbows.....each	3.50	4.25	5.50	8.00	12.00	17.00	25.00	28.00	40.00
" Reducing.... "	4.40	5.30	6.80	10.00	15.00	21.00	31.00	35.00	50.00
" 45°..... "	4.50	5.50	6.75	9.75	14.50	21.00	31.00	34.00	48.00
Tees..... "	5.50	6.75	8.25	12.00	18.00	25.00	35.00	42.00	60.00
" Reducing..... "	6.85	8.50	10.25	15.00	22.50	31.00	44.00	52.00	75.00

CROSS

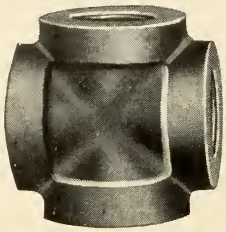


Plate E11844

"Y" BRANCH

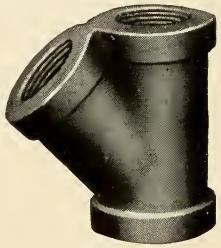


Plate E11845

Size.....inches	½	¾	1	1¼	1½	2	2½	3	3½
Crosses..... each	.60	.65	.70	.90	1.20	1.50	2.50	4.00	5.50
" Reducing.... "	.80	.85	.90	1.15	1.50	1.85	3.15	5.00	6.85
"Y" Branches..... "	....	....	1.10	1.35	1.80	2.25	3.75	6.00	8.25
" " Reducing "	....	....	1.38	1.75	2.25	2.88	4.50	7.50	10.63

Size.....inches	4	4½	5	6	7	8	9	10	12
Crosses..... each	7.00	8.50	11.00	16.00	24.00	34.00	48.00	56.00	80.00
" Reducing.... "	8.75	10.00	13.75	20.00	30.00	42.00	60.00	70.00	100.00
"Y" Branches..... "	11.00	13.50	16.50	24.00	36.00	50.00	72.00	84.00	120.00
" " Reducing "	13.75	16.88	20.63	30.00	45.00	62.50	90.00	105.00	150.00

Galvanized extra heavy fittings, double above list.

CAST IRON CAR HEATER FITTINGS

EXTRA HEAVY

ELBOW

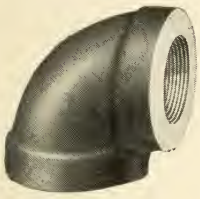


Plate E11851

TEE

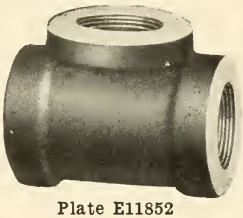


Plate E11852

RETURN BEND

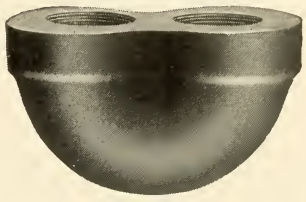


Plate E11853

ELBOWS

Size ..... inches	½	¾	1	1¼	1½x1¼	1½	2
R. H. Black ..... each	.22	.25	.27	.30	.45	.45	.55
R. and L. Black ..... "	.22	.25	.27	.30	.45	.45	.55

TEES

Size ..... inches	½	¾	1	1¼	1¼x¾x1¼	1¼x1¼x¾
Price ..... each	.30	.35	.40	.45	.45	.45
Size ..... inches	1¼x1¼x½		1½x1½x¾		1½ 2	... ...
Price ..... each	.45		.65		.65 .85	... ...

RETURN BENDS

Size ..... inches	1	1¼	1¼	1¼	1¼	1¼
R. H. Black ..... each	.45	.45	.50	.60	.70	.85
R. and L. Black ..... "	.52	.52	....	....	....	....
Centers ..... inches	2⅜	2½	3	4	5	6
Size ..... "	1¼	1½	1½	2	2	2
R. H. Black ..... each	1.10	.80	1.10	1.00	1.75	2.00
R. and L. Black ..... "	....	.90	....	1.15	....	....
Centers ..... inches	8	2½	3½	3¼	4½	6

WROUGHT IRON COUPLING

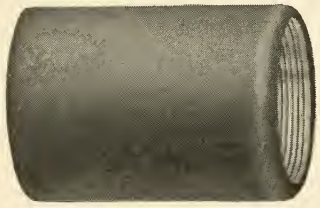


Plate E11854

CAST IRON COUPLING

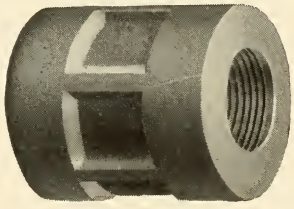


Plate E11855

CAST IRON COUPLINGS

Size ..... inches	1	1¼	1½	2
R. H. Black ..... each	.25	.30	.45	.55
R. and L. Black ..... "	.35	.40	.55	.65

WROUGHT IRON COUPLINGS

Size ..... inches	½	¾	1	1¼	1½	2
Actual Outside Diameter ..... "	1.13	1.44	1.63	2.13	2.31	2.81
Length ..... "	1.88	2.13	2.38	2.13	2.87	3.13
R. H. Black ..... each	.14	.20	.26	.34	.42	.56
R. and L. Black ..... "	.20	.30	.40	.45	.55	.70
R. H. Galvanized ..... "	.20	.25	.32	.42	.55	.75
R. and L. " ..... "	.25	.35	.45	.55	.70	.90

CAST IRON BRANCH TEES

No. 1

Plate E11861

No. 3

Plate E11862

No. 2

Plate E11863

No. 4

Plate E11864

No. of Branches	¾-inch		1-inch					1¼-inch				1½-inch			2-inch			
	2¼ Inches Center to Center		2½ Inches Center to Center					3 Inches Center to Center				3½ Inches Center to Center			4½ Inches Center to Center			
	Size of Run, Inches																	
	¾-1 1¼	1½	1 1¼	1½	2	2½	3	1¼ 1½	2	2½	3	1½ 2	2½	3	2	2½	3	3½
	Inside Diameter, Inches																	
	¾-1¼ 1-1⅜ 1-1¾	2	1-1⅜ 1¼-1¾	2	2½	3	3½	1¼-1¾ 1½-2	2½	3	3½	1½-2 2-2½	3	3½	2½	3	3½	4
2	.90	.90	.90	1.00	1.15	1.75	....	1.30	1.50	1.95	....	2.10	2.85	3.15	4.10	4.50	4.50	5.00
3	1.05	1.05	1.05	1.15	1.35	2.05	....	1.65	1.90	2.40	....	2.70	3.45	3.80	5.25	5.75	5.75	6.25
4	1.15	1.15	1.15	1.30	1.60	2.40	3.95	2.00	2.40	2.85	4.30	3.35	4.15	4.60	6.40	7.00	7.00	7.75
5	1.35	1.35	1.35	1.45	1.85	2.75	4.40	2.40	2.90	3.55	4.90	4.00	5.00	5.50	7.65	8.50	8.50	9.25
6	1.60	1.60	1.60	1.75	2.10	3.10	4.85	2.80	3.30	3.95	5.40	4.65	5.75	6.25	8.80	9.75	9.75	10.75
7	1.90	1.90	1.90	2.20	2.45	3.50	5.50	3.20	3.90	4.20	6.25	5.25	6.50	7.25	10.60	11.75	11.75	13.00
8	2.20	2.20	2.20	2.45	2.75	3.75	6.20	3.60	4.50	4.95	7.10	5.85	7.00	7.75	11.50	12.75	12.75	14.00
9	2.65	2.65	2.65	2.90	3.40	4.30	7.85	4.30	5.25	6.15	8.25	6.50	8.25	9.00	12.25	13.50	13.50	15.00
10	3.15	3.15	3.15	3.30	4.00	5.00	8.40	4.80	5.85	6.85	9.20	7.60	9.25	10.00	13.50	15.00	15.00	16.50
11	3.75	3.75	3.75	4.50	4.80	5.50	9.05	5.00	6.25	7.25	10.00	8.00	9.75	10.75	14.25	15.75	15.75	....
12	4.40	4.40	4.40	4.75	5.10	5.85	9.70	5.25	6.50	7.65	10.85	8.50	10.50	11.50	15.00	16.50	16.50	....
13	5.00	5.00	5.00	5.50	6.00	6.30	10.35	6.00	7.00	8.25	11.65	9.50	11.50	12.75	16.00	17.50	17.50	....
14	....	....	....	7.00	7.25	...	11.00	6.75	7.75	9.00	....	....	....	....	....	....	....	....
15	....	....	....	7.50	7.75	...	11.75	7.50	8.50	9.75	....	....	....	....	....	....	....	....
16	....	....	....	8.00	8.25	...	12.50	8.50	9.50	10.75	....	....	....	....	....	....	....	....

All tees are tapped at both ends, irrespective of back or side outlets.

Back or **end** outlets charged as additional front outlets.

In ordering, be sure to state size of run required. When not ordered otherwise, all openings will be tapped right-hand.

Branch tees for circulation are tapped right-hand, all openings.

Branch tees for box coils are tapped left-hand in branches and right-hand in back outlets.

CAST IRON FITTINGS

FLANGES

COMMON

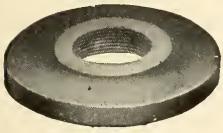


Plate E11871

FLOOR

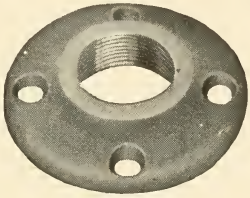


Plate E11872

CIRCULAR

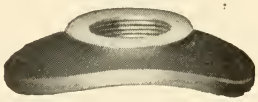


Plate E11873

COMMON, NOT FACED

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
¾x4	.22	3 x 7	.62	5x12	2.20	8x15	4.00
¾x5	.30	3 x 7½	.75	5x12½	2.20	8x16	5.00
1 x5	.30	3 x 8	.90	6x10	1.50	9x15	4.00
1 x6	.42	3 x 9	1.15	6x11	1.75	9x16	5.00
1¼x4½	.25	3½x 8	.90	6x12	2.20	9x17	5.75
1¼x5	.30	3½x 8½	1.00	6x12½	2.20	10x16	5.00
1¼x6	.40	3½x 9	1.15	6x13	2.80	10x17	5.75
1½x5	.30	3½x10	1.50	6x13½	2.80	10x18	7.00
1½x6	.40	4 x 8	.90	6x14	3.25	10x19	7.50
2 x6	.42	4 x 8½	1.00	7x12	2.20	12x18	7.00
2 x6½	.50	4 x 9	1.15	7x12½	2.20	12x19	7.50
2 x7	.62	4 x10	1.50	7x13	2.80	12x20	8.50
2 x8	.90	4½x 9	1.15	7x13½	2.80	14x20	8.50
2½x6	.42	4½x 9¼	1.25	7x14	3.25	14x21	9.50
2½x6½	.50	4½x10	1.50	7x15	4.00	15x21	9.50
2½x7	.62	4½x11	1.75	8x13	2.80	15x22¼	14.00
2½x8	.90	5 x10	1.50	8x13½	2.80	16x23½	18.00
3 x6½	.50	5 x11	1.75	8x14	3.25	.....	....

FLOOR, NOT FACED, COUNTERSUNK SCREW HOLES

Size.....inches	⅜x3	½x3½	¾x3½	1x4	1¼x4	1½x4½	2x5½
Price.....each	.10	.15	.15	.16	.16	.22	.35

All floor flanges are drilled for screw.

SPECIAL EXTRA HEAVY, FACED

Size.....inches	3x7	4x9	5x10	6x11	8x14	10x16	12x18
Price.....each	.45	.65	.85	1.10	1.60	2.75	3.50

CIRCULAR

Pipe.....inches	1½	2	2½	3	4	5	6	7	8	9	10	12
Diameter Flange.....inches	6	7	8	9	9	11	12	13	14	17	18	20

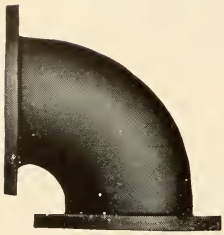
These flanges being made to order, it is always necessary to give the circle they are to fit.

STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

ELBOWS

90°



DIMENSIONS

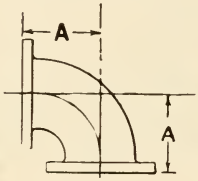
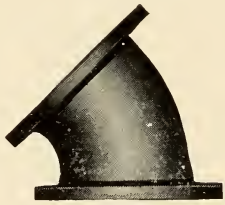


Plate E11881

45°



DIMENSIONS

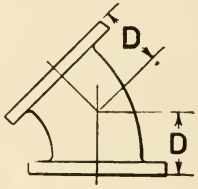


Plate E11882

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	Center to Face Inches		Price, Each			
				90°		45°	
		"A" 90°	"D" 45°	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1¼	4½	3¾	2	3.00	3.60	3.30	3.90
1½	5	4	2¼	3.00	3.60	3.30	3.90
2	6	4½	2½	3.00	3.60	3.30	3.90
2½	7	5	3	3.15	3.75	3.50	4.10
3	7½	5½	3	3.45	4.15	3.80	4.50
3½	8½	6	3½	4.05	4.90	4.50	5.35
4	9	6½	4	4.50	5.50	5.00	6.00
4½	9¼	7	4	5.50	6.50	6.00	7.00
5	10	7½	4½	6.25	7.25	6.90	7.90
6	11	8	5	7.60	8.90	8.35	9.65
7	12½	8½	5½	10.50	12.00	11.00	12.50
8	13½	9	5½	12.00	13.60	12.60	14.20
9	15	10	6	17.00	19.25	17.75	20.00
10	16	11	6½	19.00	21.70	20.00	22.70
12	19	12	7½	28.00	31.00	29.50	32.50
14	21	14	7½	41.50	45.25	41.50	45.25
15	22¼	14½	8	47.00	51.50	47.00	51.50
16	23½	15	8	54.50	59.50	54.50	59.50
18	25	16½	8½	71.00	77.00	71.00	77.00
20	27½	18	9½	90.00	97.00	90.00	97.00
22	29½	20	10	113.00	122.00	113.00	122.00
24	32	22	11	140.00	150.00	140.00	150.00

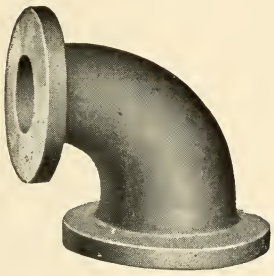
Furnished faced only, unless otherwise ordered.

Larger sizes made to order. Prices on application.

STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

REDUCING TAPER ELBOWS



DIMENSIONS

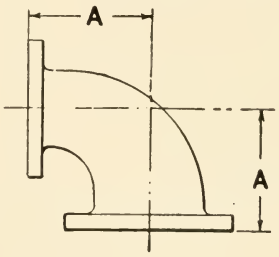


Plate E11891

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	Center to Face "A" Inches	Price, Each		Size Inches	Diameter of Flanges Inches	Center to Face "A" Inches	Price, Each	
			With Faced Flanges	With Faced and Drilled Flanges				With Faced Flanges	With Faced and Drilled Flanges
3 x1½	7½x 5	5½	6.90	7.60	8x 6	13½x11	9	24.00	25.60
3 x2	7½x 6	5½	6.90	7.60	8x 7	13½x12½	9	24.00	25.60
3 x2½	7½x 7	5½	6.90	7.60	9x 6	15 x11	10	34.00	36.25
3½x2	8½x 6	6	8.10	8.95	9x 8	15 x13½	10	34.00	36.25
3½x2½	8½x 7	6	8.10	8.95	10x 4½	16 x 9¼	11	38.00	40.70
3½x3	8½x 7½	6	8.10	8.95	10x 5	16 x10	11	38.00	40.70
4 x2	9 x 6	6½	9.00	10.00	10x 6	16 x11	11	38.00	40.70
4 x2½	9 x 7	6½	9.00	10.00	10x 7	16 x12½	11	38.00	40.70
4 x3	9 x 7½	6½	9.00	10.00	10x 8	16 x13½	11	38.00	40.70
4 x3½	9 x 8½	6½	9.00	10.00	10x 9	16 x15	11	38.00	40.70
4½x2½	9¼x 7	7	11.00	12.00	12x 6	19 x11	12	56.00	59.00
4½x3½	9¼x 8½	7	11.00	12.00	12x 7	19 x12½	12	56.00	59.00
4½x4	9¼x 9	7	11.00	12.00	12x 8	19 x13½	12	56.00	59.00
5 x2½	10 x 7	7½	12.50	13.50	12x10	19 x16	12	56.00	59.00
5 x3	10 x 7½	7½	12.50	13.50	14x10	21 x16	14	70.00	73.75
5 x4	10 x 9	7½	12.50	13.50	14x12	21 x19	14	70.00	73.75
6 x2½	11 x 7	8	15.25	16.55	15x10	22¼x16	14½	80.00	84.50
6 x3	11 x 7½	8	15.25	16.55	15x12	22¼x19	14½	80.00	84.50
6 x3½	11 x 8½	8	15.25	16.55	16x12	23½x19	15	90.00	95.00
6 x4	11 x 9	8	15.25	16.55	16x14	23½x21	15	90.00	95.00
6 x5	11 x10	8	15.25	16.55	16x15	23½x22¼	15	90.00	95.00
7 x5	12½x10	8½	21.00	22.50	18x15	25 x22¼	16½	105.00	111.00
7 x6	12½x11	8½	21.00	22.50	18x16	25 x23½	16½	105.00	111.00
8 x3½	13½x 8½	9	24.00	25.60	20x14	27½x21	18	120.00	127.00
8 x4	13½x 9	9	24.00	25.60	20x16	27½x23½	18	120.00	127.00
8 x5	13½x10	9	24.00	25.60	20x18	27½x25	18	120.00	127.00

Elbows not listed above, made to order at special price. Flanged fittings will be furnished faced only, unless otherwise ordered.

STANDARD FLANGED FITTINGS

For Steam Working Pressures up to 125 Pounds

TEES

STRAIGHT

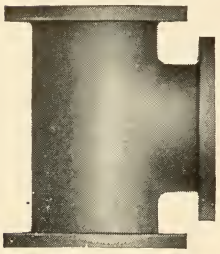
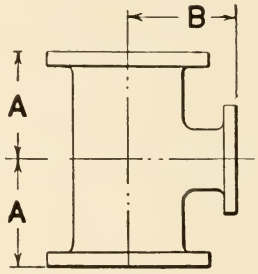


Plate E11901

DIMENSIONS



REDUCING

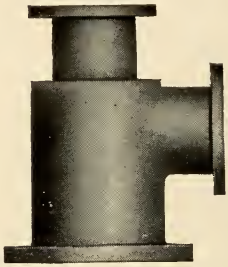


Plate E11902

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face "AA" Inches	Center to Face Inches		Price, Each			
					Straight		†Reducing	
			*"A"	*"B"	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1¼	4½	7½	3¾	3¾	4.35	5.25	.....	.....
1½	5	8	4	4	4.35	5.25	5.00	5.90
2	6	9	4½	4½	4.35	5.25	5.00	5.90
2½	7	10	5	5	4.55	5.45	5.25	6.15
3	7½	11	5½	5½	5.00	6.10	5.75	6.85
3½	8½	12	6	6	5.85	7.10	6.75	8.00
4	9	13	6½	6½	6.50	8.00	7.50	9.00
4½	9¼	14	7	7	8.00	9.50	9.25	10.75
5	10	15	7½	7½	9.10	10.60	10.50	12.00
6	11	16	8	8	11.00	12.95	12.65	14.60
7	12½	17	8½	8½	15.25	17.50	17.50	19.75
8	13½	18	9	9	17.40	19.80	20.00	22.40
9	15	20	10	10	24.65	28.00	28.50	31.85
10	16	22	11	11	27.50	31.50	31.50	35.50
12	19	24	12	12	40.50	45.00	46.50	51.00
14	21	28	14	14	60.00	65.50	69.00	74.50
15	22¼	29	14½	14½	68.00	74.75	78.00	84.75
16	23½	30	15	15	79.00	86.50	91.00	98.50
18	25	33	16½	16½	103.00	112.00	118.00	127.00
20	27½	36	18	18	130.00	140.00	150.00	160.00
22	29½	40	20	20	164.00	177.00	189.00	202.00
24	32	44	22	22	203.00	218.00	233.00	248.00

*All reducing tees, 16 inches and smaller, take the same center to face dimensions as straight size tees. All tees reducing on the run only, take the same dimensions, center to face, as the largest straight size. Tees, sizes 18 inches and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet. For variations from above dimensions in 10-inch size and larger with small outlet, see dimensions and templates for drilling. Furnished faced only, unless otherwise specified. Larger sizes made to order. Prices on application.

Bullheads or tees having outlet larger than the run, will be the same length center to face of all openings as a tee with all openings of the size of the outlet. For example, a 12x12x16-inch tee will be governed by the dimensions of the 16-inch long body tee (upper table), namely, 15 inches center to face of all openings and 30 inches face to face.

†Reducing in run or branch.

STANDARD FLANGED FITTINGS

For Steam Working Pressures up to 125 Pounds

SINGLE SWEEP TEES

STRAIGHT

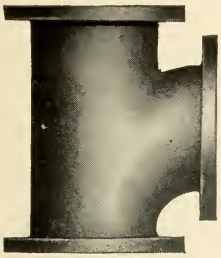
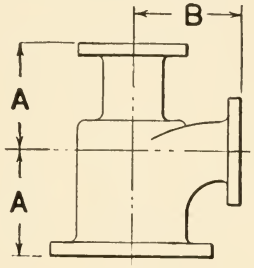


Plate E11911

DIMENSIONS



REDUCING

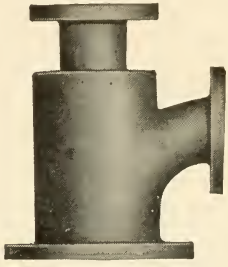


Plate E11912

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face "AA" Inches	Center to Face Inches		Price, Each			
					Straight		†Reducing	
			*"A"	*"B"	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6	9	4½	4½	5.00	5.90	5.75	6.65
2½	7	10	5	5	5.25	6.15	6.00	6.90
3	7½	11	5½	5½	5.75	6.85	6.60	7.70
3½	8½	12	6	6	6.75	8.00	7.75	9.00
4	9	13	6½	6½	7.50	9.00	8.65	10.15
4½	9¼	14	7	7	9.25	10.75	10.60	12.10
5	10	15	7½	7½	10.50	12.00	12.00	13.50
6	11	16	8	8	12.65	14.60	14.50	16.45
7	12½	17	8½	8½	17.50	19.75	20.00	22.25
8	13½	18	9	9	20.00	22.40	23.00	25.40
9	15	20	10	10	28.50	31.85	32.75	36.10
10	16	22	11	11	31.50	35.50	36.00	40.00
12	19	24	12	12	46.50	51.00	53.50	58.00
14	21	28	14	14	69.00	74.50	79.00	84.50
15	22¼	29	14½	14½	78.00	84.75	90.00	96.75
16	23½	30	15	15	91.00	98.50	105.00	112.50
18	25	33	16½	16½	118.00	127.00	135.00	144.00
20	27½	36	18	18	150.00	160.00	173.00	183.00
22	29½	40	20	20	189.00	202.00	217.00	230.00
24	32	44	22	22	233.00	248.00	268.00	283.00

*All reducing tees, 16 inches and smaller, take the same center to face dimensions as straight size tees. All tees reducing on the run only, take the same dimensions, center to face, as the largest straight size. Tees, sizes 18 inches and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet.

†Reducing in run or branch.

Furnished faced only, unless otherwise ordered. Larger sizes made to order. Prices on application. Reducing single sweep tees made to order only. Single sweep tees with the side openings larger than the run not made.

Bullheads or tees having outlet larger than the run will be the same length center to face of all openings as a tee with all openings of the size of the outlet. For example, a 12x12x16-inch tee will be governed by the dimensions of the 16-inch long body tee, namely, 15 inches center to face of all openings and 30 inches face to face.

STANDARD FLANGED FITTINGS

For Steam Working Pressures up to 125 Pounds

DOUBLE SWEEP TEES

STRAIGHT

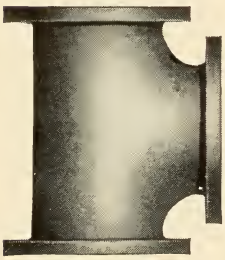
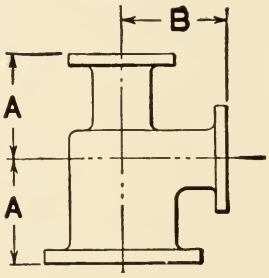


Plate E11921

DIMENSIONS



REDUCING

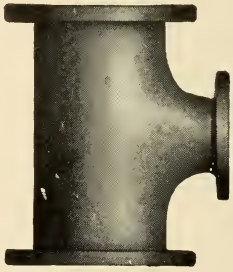


Plate E11922

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face "AA" Inches	Center to Face Inches		Price, Each			
					Straight		†Reducing	
			*"A"	*"B"	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6	9	4½	4½	5.00	5.90	5.75	6.65
2½	7	10	5	5	5.25	6.15	6.00	6.90
3	7½	11	5½	5½	5.75	6.85	6.60	7.70
3½	8½	12	6	6	6.75	8.00	7.75	9.00
4	9	13	6½	6½	7.50	9.00	8.65	10.15
4½	9¼	14	7	7	9.25	10.75	10.60	12.10
5	10	15	7½	7½	10.50	12.00	12.00	13.50
6	11	16	8	8	12.65	14.60	14.50	16.45
7	12½	17	8½	8½	17.50	19.75	20.00	22.25
8	13½	18	9	9	20.00	22.40	23.00	25.40
9	15	20	10	10	28.50	31.85	32.75	36.10
10	16	22	11	11	31.50	35.50	36.00	40.00
12	19	24	12	12	46.50	51.00	53.50	58.00
14	21	28	14	14	69.00	74.50	79.00	84.50
15	22¼	29	14½	14½	78.00	84.75	90.00	96.75
16	23½	30	15	15	91.00	98.50	105.00	112.50
18	25	33	16½	16½	118.00	127.00	135.00	144.00
20	27½	36	18	18	150.00	160.00	173.00	183.00
22	29½	40	20	20	189.00	202.00	217.00	230.00
24	32	44	22	22	233.00	248.00	268.00	283.00

*All tees reducing on outlet, 16 inches and smaller, take the same center to face dimensions as straight size tees. Tees, sizes 18 inches and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet.

†Reducing in branch only.

Furnished faced only, unless otherwise ordered. Double sweep tees are not made reducing on the run. Should such tees, however, be wanted, we can have patterns altered (which will be expensive) and charge at a special price. The branch (outlet) can only be increased within a reasonable limit, which must be regulated by the patterns.

STANDARD FLANGED FITTINGS

For Steam Working Pressures up to 125 Pounds

"Y" BRANCHES OR LATERALS

STRAIGHT

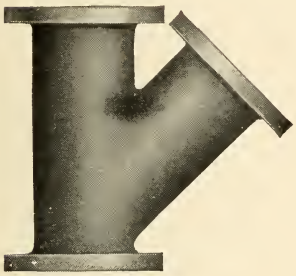
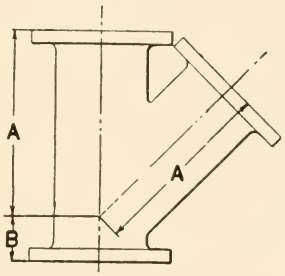


Plate E11931

DIMENSIONS



REDUCING

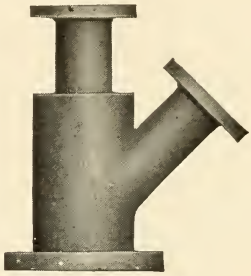


Plate E11932

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face of Run Inches	*Center to Face of Run or Outlet "A" Inches	Price, Each			
				Straight		†Reducing	
				With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1¼	4½	8	6¼	6.75	7.95	.....	.....
1½	5	9	7	6.75	7.95	.....	.....
2	6	10½	8	6.75	7.95	7.75	8.95
2½	7	12	9½	6.95	8.15	8.90	9.20
3	7½	13	10	7.65	9.05	8.75	10.15
3½	8½	14½	11½	9.00	10.70	10.35	12.05
4	9	15	12	10.00	12.00	11.50	13.50
4½	9¼	15½	12½	12.00	14.00	13.75	15.75
5	10	17	13½	13.75	15.75	15.75	17.75
6	11	18	14½	16.75	19.25	19.25	21.75
7	12½	20½	16½	23.00	26.00	26.50	29.50
8	13½	22	17½	26.50	29.75	30.50	33.75
9	15	24	19½	37.50	42.00	43.00	47.50
10	16	25½	20½	42.00	47.50	48.00	53.50
12	19	30	24½	61.50	67.50	71.00	77.00
14	21	33	27	91.00	98.50	105.00	112.50
15	22¼	34½	28½	103.00	112.00	118.00	127.00
16	23½	36½	30	120.00	130.00	138.00	148.00
18	25	39	32	157.00	169.00	180.00	192.00
20	27½	43	35	198.00	212.00	228.00	242.00
22	29½	46	37½	248.00	266.00	285.00	303.00
24	32	49½	40½	310.00	330.00	355.00	375.00

*All laterals reducing on run only carry the same dimensions face to face as straight size laterals. Sizes 18 inches and up, reducing on the branch, are made in two lengths, depending on the size of the branch.

†Reducing in run or branch.

All reducing "Y" or laterals, 16 inches and smaller, take the same center to face dimensions as the straight size fitting.

Flanged fittings will always be furnished faced only, unless otherwise ordered. Larger sizes made to order. Prices on application.

STANDARD FLANGED FITTINGS

For Steam Working Pressures up to 125 Pounds

CROSSES

STRAIGHT

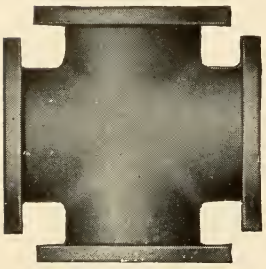
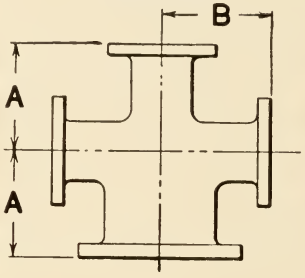


Plate E11941

DIMENSIONS



REDUCING

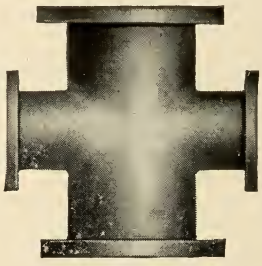


Plate E11942

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face "AA" Inches	Center to Face Inches		Price, Each			
					Straight		Reducing	
			*"A"	*"B"	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1¼	4½	7½	3¾	3¾	6.75	7.95	.....	.....
1½	5	8	4	4	6.75	7.95	.....	.....
2	6	9	4½	4½	6.75	7.95	7.75	8.95
2½	7	10	5	5	6.95	8.15	8.00	9.20
3	7½	11	5½	5½	7.65	9.05	8.75	10.15
3½	8½	12	6	6	9.00	10.70	10.35	12.05
4	9	13	6½	6½	10.00	12.00	11.50	13.50
4½	9¼	14	7	7	12.00	14.00	13.75	15.75
5	10	15	7½	7½	13.75	15.75	15.75	17.75
6	11	16	8	8	16.75	19.25	19.25	21.75
7	12½	17	8½	8½	23.00	26.00	26.50	29.50
8	13½	18	9	9	26.50	29.75	30.50	33.75
9	15	20	10	10	37.50	42.00	43.00	47.50
10	16	22	11	11	42.00	47.50	48.00	53.50
12	19	24	12	12	61.50	67.50	71.00	77.00
14	21	28	14	14	91.00	98.50	105.00	112.50
15	22¼	29	14½	14½	103.00	112.00	118.00	127.00
16	23½	30	15	15	120.00	130.00	138.00	148.00
18	25	33	16½	16½	157.00	169.00	180.00	192.00
20	27½	36	18	18	198.00	212.00	228.00	242.00
22	29½	40	20	20	248.00	266.00	285.00	303.00
24	32	44	22	22	310.00	330.00	355.00	375.00

*All reducing crosses, 16 inches and smaller, take the same center to face dimensions as straight size crosses. All crosses reducing on the run only, take the same dimensions, center to face, as the largest straight size. Crosses, sizes 18 inches, and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet.

Furnished faced only, unless otherwise ordered. Larger sizes made to order. Prices on application.

STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

TAPER REDUCERS

REGULAR

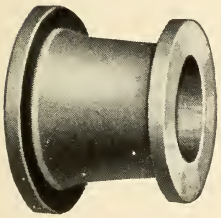
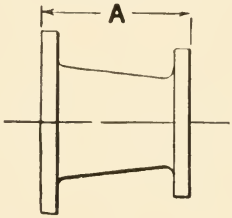


Plate E11951

DIMENSIONS



ECCENTRIC

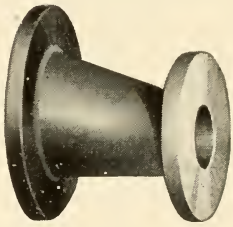


Plate E11952

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	Face to Face "A" Inches	Price, Each		Size Inches	Diameter of Flanges Inches	Face to Face "A" Inches	Price, Each	
			With Faced Flanges	With Faced and Drilled Flanges				With Faced Flanges	With Faced and Drilled Flanges
3 x2	7½x 6	6	6.90	7.60	10x 4	16 x 9	12	38.00	40.70
3½x2½	8½x 7	6½	8.10	8.95	10x 5	16 x10	12	38.00	40.70
4 x2	9 x 6	7	9.00	10.00	10x 6	16 x11	12	38.00	40.70
4 x2½	9 x 7	7	9.00	10.00	10x 8	16 x13½	12	38.00	40.70
4 x3	9 x 7½	7	9.00	10.00	12x 5	19 x10	14	56.00	59.00
5 x2	10 x 6	8	12.50	13.50	12x 6	19 x11	14	56.00	59.00
5 x2½	10 x 7	8	12.50	13.50	12x 8	19 x13½	14	56.00	59.00
5 x3	10 x 7½	8	12.50	13.50	12x10	19 x16	14	56.00	59.00
5 x4	10 x 9	8	12.50	13.50	14x 6	21 x11	16	70.00	73.75
6 x3	11 x 7½	9	15.25	16.55	14x 8	21 x13½	16	70.00	73.75
6 x3½	11 x 8½	9	15.25	16.55	14x10	21 x16	16	70.00	73.75
6 x4	11 x 9	9	15.25	16.55	14x12	21 x19	16	70.00	73.75
6 x5	11 x10	9	15.25	16.55	15x 8	22¼x13½	17	80.00	84.50
7 x3	12½x 7½	10	21.00	22.50	15x10	22¼x16	17	80.00	84.50
7 x4	12½x 9	10	21.00	22.50	15x12	22¼x19	17	80.00	84.50
7 x5	12½x10	10	21.00	22.50	15x14	22¼x21	17	80.00	84.50
7 x6	12½x11	10	21.00	22.50	16x 8	23½x13½	18	90.00	95.00
8 x3	13½x 7½	11	24.00	25.60	16x10	23½x16	18	90.00	95.00
8 x4	13½x 9	11	24.00	25.60	16x12	23½x19	18	90.00	95.00
8 x5	13½x10	11	24.00	25.60	16x14	23½x21	18	90.00	95.00
8 x6	13½x11	11	24.00	25.60	....	.....	....	....	....

Flanged taper reducers as above or of any other dimensions, will be made to order.

Flanged eccentric taper reducers, prices on application.

STANDARD FLANGED FITTINGS

For Steam Working Pressures up to 125 Pounds

LONG RADIUS ELBOW

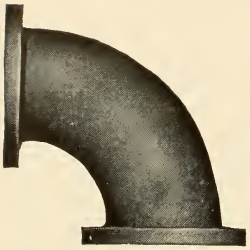
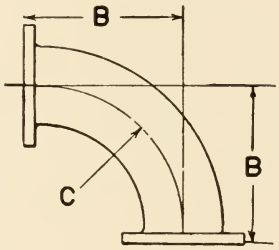


Plate E11961

DIMENSIONS



BASE ELBOW ROUND FLANGE

Plate E11962

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

LONG RADIUS ELBOWS

Size Inches	Center to Face Inches	Radius Inches	Diam. of Flanges Inches	Price, Each: With Faced Flanges	Price, Each: With Faced and Drilled Flanges
2	6½	5¼	6	5.00	5.90
2½	7	5⅝	7	5.25	6.15
3	7¾	6¼	7½	5.75	6.85
3½	8½	6⅞	8½	6.75	8.00
4	9	7⅜	9	7.50	9.00
4½	9½	7¾	9¼	9.25	10.75
5	10¼	8½	10	10.50	12.00
6	11½	9⅝	11	12.65	14.60
7	12¾	10⅞	12½	17.50	19.75
8	14	12	13½	20.00	22.40
9	15¼	13	15	28.50	31.85
10	16½	14⅛	16	31.50	35.50
12	19	16½	19	46.50	51.00
14	21½	18⅞	21	69.00	74.50
15	22¾	20	22¼	78.00	84.75
16	24	21¼	23½	91.00	98.50
18	26½	23⅝	25	118.00	127.00
20	29	26	27½	150.00	160.00

BASE ELBOWS

Size Inches	Center to Face Inches	Center to Face of Round or Square Base Inches	Diam. of *Base Flange Inches	Price, Each: Faced Except Base Flange	Price, Each: Faced and Drilled Except Base Flange	Facing and Drilling Base Flange
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....
4	6½	6½	6	9.00	10.00	3.00
4½	7	6¾	6	11.00	12.00	3.00
5	7½	7	7	12.50	13.50	3.50
6	8	7½	7	15.25	16.55	3.50
7	8½	8¼	7	21.00	22.50	3.50
8	9	8¾	9	24.00	25.60	5.00
9	10	9½	9	34.00	36.25	5.00
10	11	10	9	38.00	40.70	5.00
12	12	10½	11	56.00	59.00	7.50
14	14	13½	11	70.00	73.75	7.50
15	14½	14	11	80.00	84.50	7.50
16	15	14¾	11	90.00	95.00	7.50
18	16½	15½	13½	105.00	111.00	12.00
....	....	....	....	....	....	....

BASE TEE

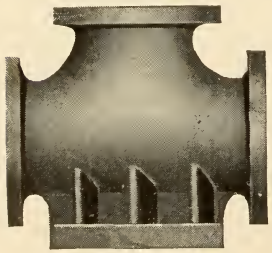


Plate E11963

*The measurement across the flat edge of square base flange is the same as the diameter of the round base flange.

Long radius elbows of different dimensions from above, made to order at a special price.

Prices given on flanged base elbows do not include facing or drilling of base flanges.

Furnished faced only, unless otherwise specified.

BASE TEES

Base tees made to order. Prices on application.

STANDARD CAST IRON FLANGES

FOR STANDARD FLANGED VALVES AND FITTINGS

For 125 Pounds Steam Working Pressure

COMPANION FLANGE

BACK VIEW, SHOWING HUB

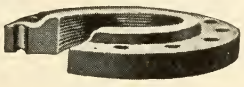


Plate E11971

SMOOTH FACE

Plate E11972

BLIND OR SOLID FLANGE

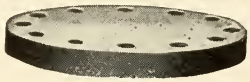


Plate E11973

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

COMPANION FLANGES			BLIND OR SOLID FLANGES		
Size Inches	Price, Each		Outside Size Inches	Price, Each	
	Faced	Faced and Drilled		Faced	Faced and Drilled
1 x 4	.55	.80	4	....	....
1¼x 4½	.60	.85	4½	....	....
1½x 5	.65	.90	5	....	....
2 x 6	.75	1.00	6	1.15	1.40
2½x 7	.85	1.10	7	1.30	1.55
3 x 7½	.95	1.25	7½	1.40	1.70
3½x 8½	1.20	1.55	8½	1.80	2.15
4 x 9	1.35	1.80	9	2.00	2.45
4½x 9¼	1.45	1.90	9¼	2.20	2.65
5 x10	1.60	2.05	10	2.40	2.85
6 x11	2.00	2.50	11	3.00	3.50
7 x12½	2.65	3.25	12½	4.00	4.60
8 x13½	3.10	3.80	13½	4.60	5.30
9 x15	3.85	4.65	15	5.75	6.55
10 x16	4.50	5.50	16	6.75	7.75
12 x19	6.50	7.65	19	9.75	10.90
14 x21	9.00	10.35	21	13.50	14.85
15 x22¼	11.50	13.20	22¼	17.00	18.70
16 x23½	13.50	15.30	23½	20.00	21.80
18 x25	16.00	18.00	25	24.00	26.00
20 x27½	19.00	21.50	27½	28.00	30.50
22 x29½	22.00	25.00	29½	33.00	36.00
24 x32	27.00	30.50	32	40.00	43.50

Furnished faced only, unless otherwise ordered.

STANDARD REDUCING COMPANION FLANGES

FOR STANDARD FLANGED VALVES AND FITTINGS

For Steam Working Pressures up to 125 Pounds

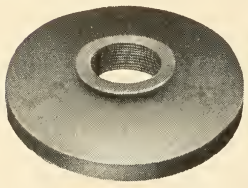


Plate E11981

These flanges, used in connection with straight or reducing fittings, enable us to fill orders for reduced sizes more promptly. Customers who desire fittings reduced in this manner will please specify "Reduce by Flanges if Necessary."

They will always be of the same thickness as the regular companion flanges of corresponding outside diameter, and drilled to the template corresponding to the outside diameter, unless otherwise ordered.

In ordering reducing companion flanges, always give the screwed or reduced size first, then the outside diameter of flange wanted; for instance, if a reducing flange is wanted to connect a 6-inch pipe to a 9-inch flanged valve or fitting having a 15-inch O. D. flange, order a 6x15-inch reducing flange. This will clearly avoid the confusion often caused by orders incorrectly calling for a 9x6 or 6x9-inch flange.

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Price, Each		Size Inches	Price, Each		Size Inches	Price, Each	
	Faced only	Faced and Drilled		Faced only	Faced and Drilled		Faced only	Faced and Drilled
1 x 6	1.30	1.55	4½ x 11	3.30	3.80	8 x 21	15.00	16.35
1¼ x 6	1.30	1.55	5 x 11	3.30	3.80	9 x 21	15.00	16.35
1½ x 6	1.30	1.55	4 x 12½	4.40	5.00	10 x 21	15.00	16.35
1½ x 7	1.45	1.70	4½ x 12½	4.40	5.00	12 x 21	15.00	16.35
2 x 7	1.45	1.70	5 x 12½	4.40	5.00	8 x 22¼	19.00	20.70
1½ x 7½	1.55	1.85	6 x 12½	4.40	5.00	10 x 22¼	19.00	20.70
2 x 7½	1.55	1.85	2 x 13½	5.10	5.80	12 x 22¼	19.00	20.70
2½ x 7½	1.55	1.85	2½ x 13½	5.10	5.80	14 x 22¼	19.00	20.70
2 x 8½	2.00	2.35	3 x 13½	5.10	5.80	10 x 23½	22.00	23.80
2½ x 8½	2.00	2.35	4 x 13½	5.10	5.80	12 x 23½	22.00	23.80
3 x 8½	2.00	2.35	5 x 13½	5.10	5.80	14 x 23½	22.00	23.80
2 x 9	2.20	2.65	6 x 13½	5.10	5.80	15 x 23½	22.00	23.80
2½ x 9	2.20	2.65	7 x 13½	5.10	5.80	12 x 25	26.50	28.50
3 x 9	2.20	2.65	6 x 15	6.35	7.15	14 x 25	26.50	28.50
3½ x 9	2.20	2.65	7 x 15	6.35	7.15	15 x 25	26.50	28.50
2½ x 9¼	2.40	2.85	8 x 15	6.35	7.15	16 x 25	26.50	28.50
3 x 9¼	2.40	2.85	2½ x 16	7.45	8.45	14 x 27½	31.00	33.50
3½ x 9¼	2.40	2.85	3 x 16	7.45	8.45	15 x 27½	31.00	33.50
4 x 9¼	2.40	2.85	3½ x 16	7.45	8.45	16 x 27½	31.00	33.50
2 x 10	2.65	3.10	4 x 16	7.45	8.45	18 x 27½	31.00	33.50
2½ x 10	2.65	3.10	5 x 16	7.45	8.45	15 x 29½	36.00	39.00
3 x 10	2.65	3.10	6 x 16	7.45	8.45	16 x 29½	36.00	39.00
3½ x 10	2.65	3.10	7 x 16	7.45	8.45	18 x 29½	36.00	39.00
4 x 10	2.65	3.10	8 x 16	7.45	8.45	20 x 29½	36.00	39.00
4½ x 10	2.65	3.10	9 x 16	7.45	8.45	14 x 32	44.00	47.50
2 x 11	3.30	3.80	6 x 19	10.75	11.90	16 x 32	44.00	47.50
2½ x 11	3.30	3.80	7 x 19	10.75	11.90	18 x 32	44.00	47.50
3 x 11	3.30	3.80	8 x 19	10.75	11.90	20 x 32	44.00	47.50
3½ x 11	3.30	3.80	9 x 19	10.75	11.90	.....	.....	.....
4 x 11	3.30	3.80	10 x 19	10.75	11.90	.....	.....	.....

Furnished smooth faced and not drilled, unless otherwise specified.

TEMPLATES FOR DRILLING STANDARD AND LOW PRESSURE FLANGED VALVES AND FITTINGS

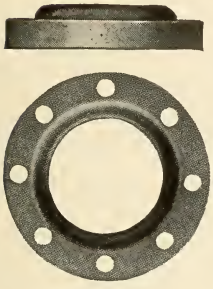


Plate E11591

SIZES 1-INCH TO 48-INCH, INCLUSIVE

These drilling templates are in multiples of four, so that fittings may be made to face in any quarter, and bolt holes straddle the center line. They can be drilled to any other template, if so desired.

Bolt holes are drilled 1/8 inch larger than nominal diameter of bolts, except that brass valves and fittings, 6-inch and smaller, have holes 1/16 inch larger than the bolts.

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

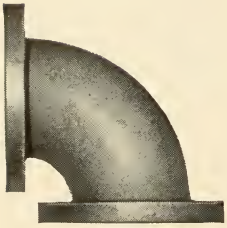
Size Inches	Diameter of Flanges Inches	Thickness of Flanges Inches	Bolt Circle Inches	Number of Bolts	Size of Bolts Inches	Bolt Lengths Inches
3/4	3 1/2	7/16	2 1/2	4	3/8	1 1/2
1	4	7/16	3	4	7/16	1 1/2
1 1/4	4 1/2	1/2	3 3/8	4	7/16	1 1/2
1 1/2	5	9/16	3 7/8	4	1/2	1 3/4
2	6	5/8	4 3/4	4	5/8	2
2 1/2	7	11/16	5 1/2	4	5/8	2 1/4
3	7 1/2	3/4	6	4	5/8	2 1/2
3 1/2	8 1/2	13/16	7	4	5/8	2 1/2
4	9	15/16	7 1/2	8	5/8	2 3/4
4 1/2	9 1/4	15/16	7 3/4	8	3/4	3
5	10	15/16	8 1/2	8	3/4	3
6	11	1	9 1/2	8	3/4	3
7	12 1/2	1 1/16	10 3/4	8	3/4	3
8	13 1/2	1 1/8	11 3/4	8	3/4	3 1/4
9	15	1 1/8	13 1/4	12	3/4	3 1/4
10	16	1 3/16	14 1/4	12	7/8	3 1/2
12	19	1 1/4	17	12	7/8	3 3/4
14	21	1 3/8	18 3/4	12	1	4 1/4
15	22 1/4	1 3/8	20	16	1	4 1/4
16	23 1/2	1 7/16	21 1/4	16	1	4 1/4
18	25	1 9/16	22 3/4	16	1 1/8	4 3/4
20	27 1/2	1 11/16	25	20	1 1/8	5
22	29 1/2	1 13/16	27 1/4	20	1 1/4	5 1/2
24	32	1 7/8	29 1/2	20	1 1/4	5 1/2
26	34 1/4	2	31 3/4	24	1 1/4	5 3/4
28	36 1/2	2 1/16	34	28	1 1/4	6
30	38 3/4	2 1/8	36	28	1 3/8	6 1/4
32	41 3/4	2 1/4	38 1/2	28	1 1/2	6 1/2
34	43 3/4	2 5/16	40 1/2	32	1 1/2	6 1/2
36	46	2 3/8	42 3/4	32	1 1/2	7
38	48 3/4	2 3/8	45 1/4	32	1 5/8	7
40	50 3/4	2 1/2	47 1/4	36	1 5/8	7
42	53	2 5/8	49 1/2	36	1 5/8	7 1/2
44	55 1/4	2 5/8	51 3/4	40	1 5/8	7 1/2
46	57 1/4	2 11/16	53 3/4	40	1 5/8	7 1/2
48	59 1/2	2 3/4	56	44	1 5/8	8

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

ELBOWS

90°



DIMENSIONS

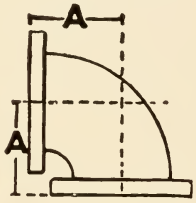
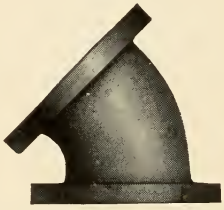


Plate E12001

45°



DIMENSIONS

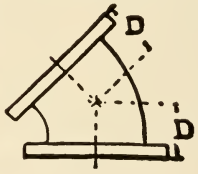


Plate E12002

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	Center to Face Inches		Price, Each			
				90°		45°	
		"A" 90°	"D" 45°	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1¼	5	4¼	2½	4.50	5.40	5.00	5.90
1½	6	4½	2¾	4.50	5.40	5.00	5.90
2	6½	5	3	4.50	5.40	5.00	5.90
2½	7½	5½	3½	4.75	5.65	5.25	6.15
3	8¼	6	3½	5.15	6.25	5.65	6.75
3½	9	6½	4	6.10	7.35	6.75	8.00
4	10	7	4½	6.75	8.25	7.50	9.00
4½	10½	7½	4½	8.25	9.75	9.00	10.50
5	11	8	5	9.35	10.85	10.35	11.85
6	12½	8½	5½	11.40	13.40	12.50	14.50
7	14	9	6	15.75	18.00	16.50	18.75
8	15	10	6	18.00	20.50	19.00	21.50
9	16¼	10½	6½	25.50	28.85	26.75	30.10
10	17½	11½	7	28.50	32.50	30.00	34.00
12	20½	13	8	42.00	46.50	44.00	48.50
14	23	15	8½	62.00	67.50	62.00	67.50
15	24½	15½	9	70.00	77.00	70.00	77.00
16	25½	16½	9½	82.00	90.00	82.00	90.00
18	28	18	10	106.00	115.00	106.00	115.00
20	30½	19½	10½	135.00	145.00	135.00	145.00
22	33	20½	11	170.00	183.00	170.00	183.00
24	36	22½	12	210.00	225.00	210.00	225.00

Furnished faced only, unless otherwise ordered.

Larger sizes made to order. Prices on application.

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

REDUCING TAPER ELBOWS

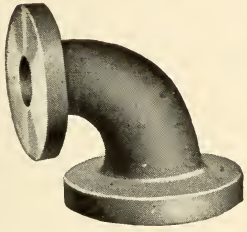
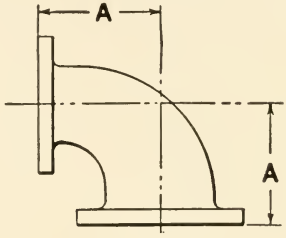


Plate E12011

DIMENSIONS



New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	Center to Face "A" Inches	Price, Each		Size Inches	Diameter of Flanges Inches	Center to Face "A" Inches	Price, Each	
			With Faced Flanges	With Faced and Drilled Flanges				With Faced Flanges	With Faced and Drilled Flanges
2 x1¼	6½x 5	5	9.00	9.90	7x 6	14 x12½	9	31.50	33.75
2 x1½	6½x 6	5	9.00	9.90	8x 4	15 x10	10	36.00	38.50
2½x1½	7½x 6	5½	9.50	10.40	8x 5	15 x11	10	36.00	38.50
2½x2	7½x 6½	5½	9.50	10.40	8x 6	15 x12½	10	36.00	38.50
3 x1½	8¼x 6	6	10.25	11.35	8x 7	15 x14	10	36.00	38.50
3 x2	8¼x 6½	6	10.25	11.35	10x 5	17½x11	11½	57.00	61.00
3 x2½	8¼x 7½	6	10.25	11.35	10x 6	17½x12½	11½	57.00	61.00
3½x2	9 x 6½	6½	12.25	13.50	10x 7	17½x14	11½	57.00	61.00
3½x2½	9 x 7½	6½	12.25	13.50	10x 8	17½x15	11½	57.00	61.00
3½x3	9 x 8¼	6½	12.25	13.50	12x 7	20½x14	13	84.00	88.50
4 x2	10 x 6½	7	13.50	15.00	12x 8	20½x15	13	84.00	88.50
4 x2½	10 x 7½	7	13.50	15.00	12x 9	20½x16¼	13	84.00	88.50
4 x3	10 x 8¼	7	13.50	15.00	12x10	20½x17½	13	84.00	88.50
4 x3½	10 x 9	7	13.50	15.00	14x 6	23 x12½	15	105.00	110.50
5 x2½	11 x 7½	8	18.75	20.25	14x10	23 x17½	15	105.00	110.50
5 x3	11 x 8¼	8	18.75	20.25	14x12	23 x20½	15	105.00	110.50
5 x4	11 x10	8	18.75	20.25	15x 6	24½x12½	15½	120.00	127.00
6 x3	12½x 8¼	8½	22.75	24.75	15x10	24½x17½	15½	120.00	127.00
6 x3½	12½x 9	8½	22.75	24.75	15x12	24½x20½	15½	120.00	127.00
6 x4	12½x10	8½	22.75	24.75	16x 8	25½x15	16½	135.00	143.00
6 x4½	12½x10½	8½	22.75	24.75	16x10	25½x17½	16½	135.00	143.00
6 x5	12½x11	8½	22.75	24.75	16x12	25½x20½	16½	135.00	143.00
7 x4	14 x10	9	31.50	33.75	16x14	25½x23	16½	135.00	143.00
7 x5	14 x11	9	31.50	33.75	.....	.....	....	.....	.....

Furnished face only, unless otherwise specified.
Reducing elbows, not listed above, furnished to order at special price.

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

TEES

STRAIGHT

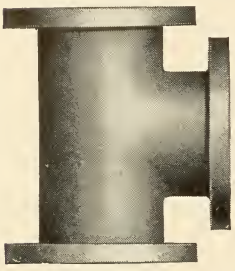
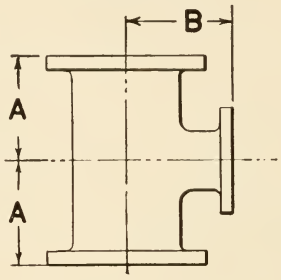


Plate E12021

DIMENSIONS



REDUCING

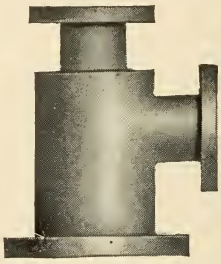


Plate E12022

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face "AA" Inches	Center to Face Inches		Price, Each			
					Straight		†Reducing	
			*"A"	*"B"	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1¼	5	8½	4¼	4¼	6.50	7.85	.....	.....
1½	6	9	4½	4½	6.50	7.85	7.50	8.85
2	6½	10	5	5	6.50	7.85	7.50	8.85
2½	7½	11	5½	5½	6.90	8.25	8.00	9.35
3	8¼	12	6	6	7.50	9.15	8.60	10.25
3½	9	13	6½	6½	8.90	10.80	10.25	12.15
4	10	14	7	7	9.75	12.00	11.25	13.50
4½	10½	15	7½	7½	12.00	14.25	13.75	16.00
5	11	16	8	8	13.50	15.75	15.50	17.75
6	12½	17	8½	8½	16.50	19.50	19.00	22.00
7	14	18	9	9	23.00	26.35	26.50	29.85
8	15	20	10	10	26.00	29.75	30.00	33.75
9	16¼	21	10½	10½	37.00	42.00	42.50	47.50
10	17½	23	11½	11½	41.50	47.50	47.75	53.75
12	20½	26	13	13	61.00	67.75	70.00	76.75
14	23	30	15	15	90.00	98.25	103.50	111.75
15	24½	31	15½	15½	102.00	112.00	117.00	127.00
16	25½	33	16½	16½	119.00	131.00	137.00	149.00
18	28	36	18	18	154.00	168.00	177.00	191.00
20	30½	39	19½	19½	195.00	210.00	225.00	240.00
22	33	41	20½	20½	247.00	267.00	285.00	305.00
24	36	45	22½	22½	305.00	328.00	350.00	373.00

*All reducing tees, 16 inches and smaller, take the same center to face dimensions as straight size tees. All tees reducing on the run only, take the same dimensions, center to face, as the largest straight size. Tees, sizes 18 inches and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet.

†Reducing in run or branch.

Furnished faced only, unless otherwise ordered. Larger sizes made to order. Prices on application.

Bullheads or tees having outlet larger than the run will be the same length center to face of all openings as a tee with all openings of the size of the outlet. For example, a 12x12x18-inch tee will be governed by the dimensions of the 18-inch long body tee, namely, 18 inches center to face of all openings and 36 inches face to face.

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

SINGLE SWEEP TEES

STRAIGHT

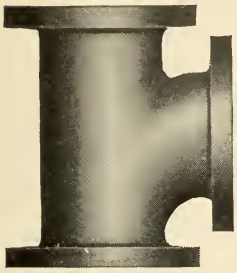
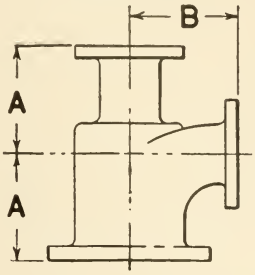


Plate E12031

DIMENSIONS



REDUCING

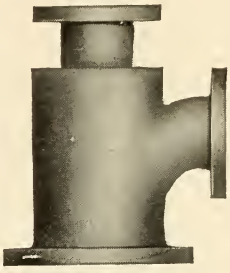


Plate E12032

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face "AA" Inches	Center to Face Inches		Price, Each			
					Straight		†Reducing	
			*"A"	*"B"	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6½	10	5	5	7.50	8.85	8.50	9.95
2½	7½	11	5½	5½	8.00	9.35	9.15	10.50
3	8¼	12	6	6	8.60	10.25	9.90	11.55
3½	9	13	6½	6½	10.25	12.15	11.75	13.65
4	10	14	7	7	11.25	13.50	13.00	15.25
4½	10½	15	7½	7½	13.75	16.00	15.75	18.00
5	11	16	8	8	15.50	17.75	17.85	20.10
6	12½	17	8½	8½	19.00	22.00	22.00	25.00
7	14	18	9	9	26.50	29.85	30.50	33.85
8	15	20	10	10	30.00	33.75	34.50	38.25
9	16¼	21	10½	10½	42.50	47.50	49.00	54.00
10	17½	23	11½	11½	47.75	53.75	55.00	61.00
12	20½	26	13	13	70.00	76.75	80.00	86.75
14	23	30	15	15	103.50	111.75	119.00	127.25
15	24½	31	15½	15½	117.00	127.00	135.00	145.00
16	25½	33	16½	16½	137.00	149.00	158.00	170.00
18	28	36	18	18	177.00	191.00	204.00	218.00
20	30½	39	19½	19½	225.00	240.00	260.00	275.00
22	33	41	20½	20½	285.00	305.00	327.00	347.00
24	36	45	22½	22½	350.00	373.00	402.00	425.00

*All reducing tees, 16 inches and smaller, take the same center to face dimensions as straight size tees. All tees reducing on the run only, take the same dimensions, center to face, as the largest straight size. Tees, sizes 18 inches and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet.

†Reducing in run or branch.

Furnished faced only, unless otherwise ordered. Larger sizes made to order. Prices on application. Reducing single sweep tees made to order only. Single sweep tees not made with the side opening larger than the run.

Bullheads or tees having outlet larger than the run will be the same length center to face of all openings as a tee with all openings of the size of the outlet. For example, a 12x12x18-inch tee will be governed by the dimensions of the 18-inch long body tee, namely, 18 inches center to face of all openings and 36 inches face to face.

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

DOUBLE SWEEP TEES

STRAIGHT

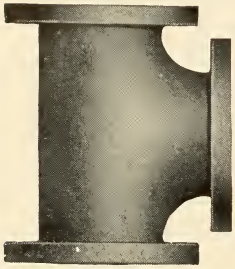
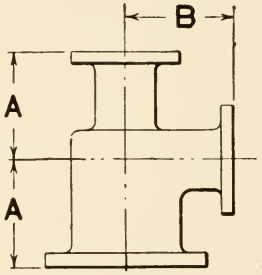


Plate E12041

DIMENSIONS



REDUCING

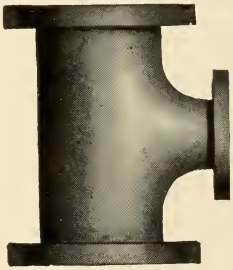


Plate E12042

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face "AA" Inches	Center to Face Inches		Price, Each			
					Straight		†Reducing	
			*"A"	**"B"	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6½	10	5	5	7.50	8.85	8.60	9.95
2½	7½	11	5½	5½	8.00	9.35	9.15	10.50
3	8¼	12	6	6	8.60	10.25	9.90	11.55
3½	9	13	6½	6½	10.25	12.15	11.75	13.65
4	10	14	7	7	11.25	13.50	13.00	15.25
4½	10½	15	7½	7½	13.75	16.00	15.75	18.00
5	11	16	8	8	15.50	17.75	17.85	20.10
6	12½	17	8½	8½	19.00	22.00	22.00	25.00
7	14	18	9	9	26.50	29.85	30.50	33.85
8	15	20	10	10	30.00	33.75	34.50	38.25
9	16¼	21	10½	10½	42.50	47.50	49.00	54.00
10	17½	23	11½	11½	47.75	53.75	55.00	61.00
12	20½	26	13	13	70.00	76.75	80.00	86.75
14	23	30	15	15	103.50	111.75	119.00	127.25
15	24½	31	15½	15½	117.00	127.00	135.00	145.00
16	25½	33	16½	16½	137.00	149.00	158.00	170.00
18	28	36	18	18	177.00	191.00	204.00	218.00
20	30½	39	19½	19½	225.00	240.00	260.00	275.00
22	33	41	20½	20½	285.00	305.00	327.00	347.00
24	36	45	22½	22½	350.00	373.00	402.00	425.00

*All tees reducing on outlet, 16 inches and smaller, take the same center to face dimensions as straight size tees. All tees reducing on the run only, take the same dimensions, center to face, as the largest straight size. Tees, sizes 18 inches and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet.

†Double sweep tees are not made reducing on the run. Should such tees, however, be wanted, we can have pattern altered (which will be expensive) and charge at a special price. The branch (outlet) can only be increased within a reasonable limit, which must be regulated by the patterns.

Furnished faced only, unless otherwise ordered. Reducing double sweep tees made to order only.

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

"Y" BRANCHES OR LATERALS

STRAIGHT

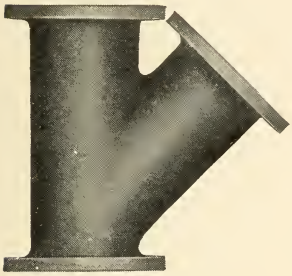
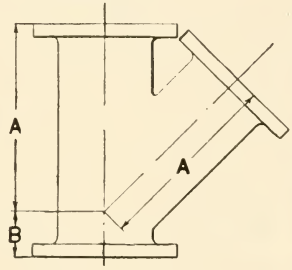


Plate E12051

DIMENSIONS



REDUCING

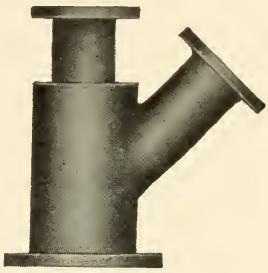


Plate E12052

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face of Run Inches	Center to Face of Run or Outlet "A" Inches	Price, Each			
				Standard		†Reducing	
				With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6½	11½	9	10.00	11.80	11.50	13.30
2½	7½	13	10½	10.50	12.30	12.00	13.80
3	8¼	14	11	11.50	13.75	13.25	15.50
3½	9	15½	12½	13.50	16.00	15.50	18.00
4	10	16½	13½	15.00	18.00	17.00	20.00
4½	10½	18	14½	18.00	21.00	21.00	24.00
5	11	18½	15	20.50	23.50	23.50	26.50
6	12½	21½	17½	25.00	29.00	29.00	33.00
7	14	23½	19	35.00	39.50	40.00	44.50
8	15	25½	20½	40.00	45.00	46.00	51.00
9	16¼	27½	22½	56.00	62.75	65.00	71.75
10	17½	29½	24	63.00	71.00	72.00	80.00
12	20½	33½	27½	92.00	101.00	106.00	115.00
14	23	37½	31	136.00	147.00	158.00	169.00
15	24½	39½	33	155.00	169.00	177.00	191.00
16	25½	42	34½	180.00	196.00	207.00	223.00
18	28	45½	37½	235.00	253.00	270.00	288.00
20	30½	49	40½	300.00	320.00	345.00	365.00
22	33	53	43½	375.00	401.00	430.00	456.00
24	36	57½	47½	465.00	495.00	535.00	565.00

*All laterals reducing on run only, carry the same dimensions face to face as straight size laterals. Sizes 18 inches and up, reducing on the branch, are made in two lengths, depending on the size of the branch.

†Reducing in run or branch.

Furnished faced only, unless otherwise ordered.

All reducing "Y's" or laterals, 16 inches and smaller, take the same center to face dimensions as straight size fitting.

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

CROSSES

STRAIGHT

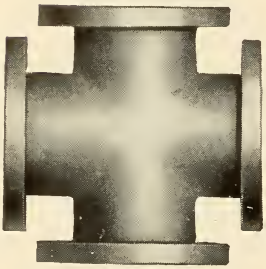
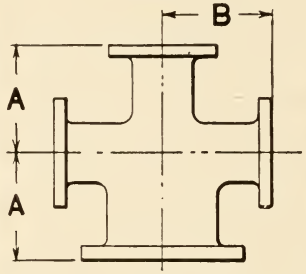


Plate E12061

DIMENSIONS



REDUCING

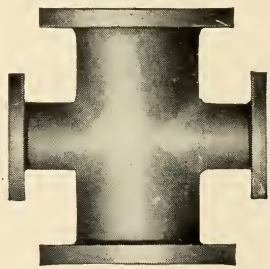


Plate E12062

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' committee.

Size Inches	Diameter of Flanges Inches	Face to Face "AA" Inches	Center to Face Inches		Price, Each			
					Straight		†Reducing	
			"A" Straight	"B" *Reducing	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1¼	5	8½	4¼	4¼	10.00	11.80	.....	.....
1½	6	9	4½	4½	10.00	11.80	.....	.....
2	6½	10	5	5	10.00	11.80	11.50	13.30
2½	7½	11	5½	5½	10.50	12.30	12.00	13.80
3	8¼	12	6	6	11.50	13.75	13.25	15.50
3½	9	13	6½	6½	13.50	16.00	15.50	18.00
4	10	14	7	7	15.00	18.00	17.00	20.00
4½	10½	15	7½	7½	18.00	21.00	21.00	24.00
5	11	16	8	8	20.50	23.50	23.50	26.50
6	12½	17	8½	8½	25.00	29.00	29.00	33.00
7	14	18	9	9	35.00	39.50	40.00	44.50
8	15	20	10	10	40.00	45.00	46.00	51.00
9	16¼	21	10½	10½	56.00	62.75	65.00	71.75
10	17½	23	11½	11½	63.00	71.00	72.00	80.00
12	20½	26	13	13	92.00	101.00	106.00	115.00
14	23	30	15	15	136.00	147.00	158.00	169.00
15	24½	31	15½	15½	155.00	169.00	177.00	191.00
16	25½	33	16½	16½	180.00	196.00	207.00	223.00
18	28	36	18	18	235.00	253.00	270.00	288.00
20	30½	39	19½	19½	300.00	320.00	345.00	365.00
22	33	41	20½	20½	375.00	401.00	430.00	456.00
24	36	45	22½	22½	465.00	495.00	535.00	565.00

*All reducing crosses, 16 inches and smaller, take the same center to face dimensions as straight size crosses. All crosses reducing on the run only, take the same dimensions, center to face, as the largest straight size. Crosses, sizes 18 inches and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet.

Furnished faced only, unless otherwise ordered.

†Reducing crosses made to order only.

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

TAPER REDUCERS

REGULAR

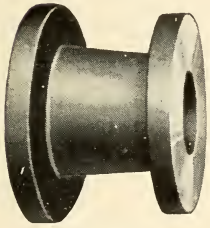
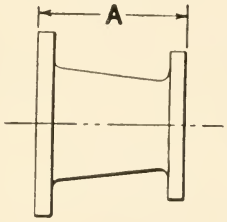


Plate E12071

DIMENSIONS



ECCENTRIC

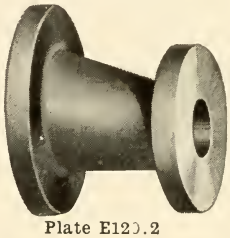


Plate E120.2

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Face to Face "A" Inches	Diameter of Flanges Inches	Price, Each		Size Inches	Face to Face "A" Inches	Diameter of Flanges Inches	Price, Each	
			With Faced Flanges	With Faced and Drilled Flanges				With Faced Flanges	With Faced and Drilled Flanges
3 x 2	6	8¼x 6½	10.25	11.35	14x 6	16	23 x12½	105.00	110.50
3½x 2½	6½	9 x 7½	12.25	13.50	14x 8	16	23 x15	105.00	110.50
4 x 2	7	10 x 6½	13.50	15.00	14x10	16	23 x17½	105.00	110.50
4 x 2½	7	10 x 7½	13.50	15.00	14x12	16	23 x20½	105.00	110.50
4 x 3	7	10 x 8¼	13.50	15.00	15x 8	17	24½x15	120.00	127.00
5 x 2	8	11 x 6½	18.75	20.25	15x10	17	24½x17½	120.00	127.00
5 x 2½	8	11 x 7½	18.75	20.25	15x12	17	24½x20½	120.00	127.00
5 x 3	8	11 x 8¼	18.75	20.25	15x14	17	24½x23	120.00	127.00
5 x 4	8	11 x10	18.75	20.25	16x 8	18	25½x15	135.00	143.00
6 x 3	9	12½x 8¼	22.75	24.75	16x10	18	25½x17½	135.00	143.00
6 x 3½	9	12½x 9	22.75	24.75	16x12	18	25½x20½	135.00	143.00
6 x 4	9	12½x10	22.75	24.75	16x14	18	25½x23	135.00	143.00
6 x 5	9	12½x11	22.75	24.75	18x10	19	28 x17½	157.00	166.00
7 x 3	10	14 x 8¼	31.50	33.75	18x12	19	28 x20½	157.00	166.00
7 x 4	10	14 x10	31.50	33.75	18x14	19	28 x23	157.00	166.00
7 x 5	10	14 x11	31.50	33.75	18x16	19	28 x25½	157.00	166.00
7 x 6	10	14 x12½	31.50	33.75	20x12	20	30½x20½	180.00	190.00
8 x 3	11	15 x 8¼	36.00	38.50	20x14	20	30½x23	180.00	190.00
8 x 4	11	15 x10	36.00	38.50	20x16	20	30½x25½	180.00	190.00
8 x 5	11	15 x11	36.00	38.50	20x18	20	30½x28	180.00	190.00
8 x 6	11	15 x12½	36.00	38.50	22x14	22	33 x23	225.00	238.00
10 x 4	12	17½x10	57.00	61.00	22x16	22	33 x25½	225.00	238.00
10 x 5	12	17½x11	57.00	61.00	22x18	22	33 x28	225.00	238.00
10 x 6	12	17½x12½	57.00	61.00	22x20	22	33 x30½	225.00	238.00
10 x 8	12	17½x15	57.00	61.00	24x16	24	36 x25½	285.00	300.00
12 x 5	14	20½x11	84.00	88.50	24x18	24	36 x28	285.00	300.00
12 x 6	14	20½x12½	84.00	88.50	24x20	24	36 x30½	285.00	300.00
12 x 8	14	20½x15	84.00	88.50	24x22	24	36 x33	285.00	300.00
12 x10	14	20½x17½	84.00	88.50	.....	..	.....	.....	.....

Furnished faced only, unless otherwise specified.

Flanged eccentric taper reducers. Prices on application.

EXTRA HEAVY FLANGED FITTINGS

For Steam Working Pressures up to 250 Pounds

LONG RADIUS ELBOW

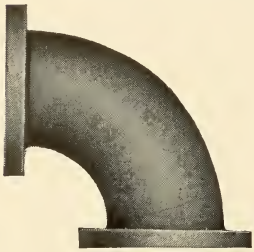
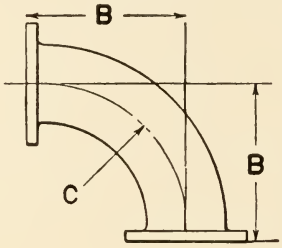


Plate E12081

DIMENSIONS



BASE ELBOW, ROUND FLANGE

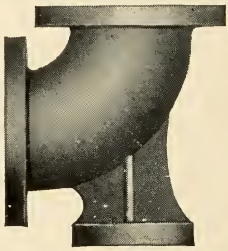


Plate E12082

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Steam and Hot Water Fitters and Manufacturers' Committee.

LONG RADIUS ELBOWS

Size Inches	Center to Face Inches	Radius Inches	Diam. of Flanges Inches	Price, Each: With Faced Flanges	Price, Each: With Faced and Drilled Flanges
2	6½	5¼	6½	7.50	8.85
2½	7	5⅝	7½	8.00	9.35
3	7¾	6¼	8¼	8.60	10.25
3½	8½	6⅞	9	10.25	12.15
4	9	7⅜	10	11.25	13.50
4½	9½	7¾	10½	13.75	16.00
5	10¼	8½	11	15.50	17.75
6	11½	9⅝	12½	19.00	22.00
7	12¾	10⅞	14	26.50	29.85
8	14	12	15	30.00	33.75
9	15¼	13	16¼	42.50	47.50
10	16½	14⅛	17½	47.75	53.75
12	19	16½	20½	70.00	76.75
14	21½	18⅞	23	103.50	111.75
15	22¾	20	24½	117.00	127.00
16	24	21¼	25½	137.00	149.00

BASE ELBOWS

Size Inches	Diam. of Flanges Except Base Flange Inches	Center to Face Inches	Center to Face of Round or Square Base Inches	Diam. of *Base Flanges Inches	Price, Each: Faced Except Base Flange	Price, Each: Faced and Drilled Except Base Flange	Facing and Drilling Base Flange
....	....	....	....	....	.....	.....	....
....	....	....	....	....	.....	.....	....
....	....	....	....	....	.....	.....	....
....	....	....	....	....	.....	.....	....
4	10	7	7	6½	13.50	15.00	4.50
4½	10½	7½	7¼	6½	16.50	18.00	4.50
5	11	8	7½	7½	18.75	20.25	5.25
6	12½	8½	8	7½	22.75	24.75	5.25
7	14	9	8¾	7½	31.50	33.75	5.25
8	15	10	9¼	10	36.00	38.50	7.50
9	16¼	10½	10	10	51.00	54.35	7.50
10	17½	11½	10½	10	57.00	61.00	7.50
12	20½	13	11	12½	84.00	88.50	11.00
14	23	15	14	12½	105.00	110.50	11.00
15	24½	15½	14½	12½	120.00	127.00	11.00
16	25½	16½	15¼	12½	135.00	143.00	11.00

BASE TEE

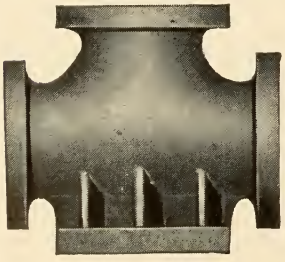


Plate E13083,

*The measurement across the flat edges of square base flange is the same as the diameter of the round base flange.

Furnished faced only unless otherwise ordered.

Sizes above 16-inch, prices on application.

BASE TEES

Base tees made to order. Prices on application.

EXTRA HEAVY COMPANION FLANGES

FOR EXTRA HEAVY FLANGED VALVES AND FITTINGS

For Steam Working Pressures up to 250 Pounds

COMPANION FLANGE

BACK VIEW, SHOWING HUB

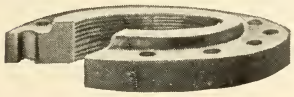


Plate E12091

SMOOTH FACE

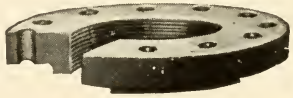


Plate E12092

BLIND OR SOLID FLANGE
16-INCH AND SMALLER

Plate E12093

Unless otherwise specified, we always furnish extra heavy flanges and fittings with $\frac{1}{16}$-inch raised face, for which there is no extra charge. This style of facing will hold any gasket, and is especially necessary where a thin corrugated copper gasket is used, as this gasket draws down to $\frac{1}{32}$ inch or less and the heavy bolting would (without the raised face) spring the flanges until the edges touch, without putting sufficient pressure in the gasket.

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Cast Iron Price, Each		Semi-Steel Price, Each		Cast Steel Price, Each		Forged Steel Price, Each		Blind Flanges Price, Each	
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
1 x 4½	.95	1.30	1.20	1.65	5.00	5.50	7.50	8.00	.....	.....
1¼x 5	1.00	1.35	1.25	1.70	5.40	6.00	8.40	9.00	.....	.....
1½x 6	1.10	1.45	1.35	1.80	5.90	6.50	9.40	10.00	1.65	2.00
2 x 6½	1.25	1.60	1.55	2.00	6.90	7.50	10.40	11.00	1.90	2.25
2½x 7½	1.40	1.75	1.75	2.20	7.30	8.50	11.80	13.00	2.10	2.45
3 x 8¼	1.60	2.05	2.00	2.55	8.70	10.00	13.70	15.00	2.40	2.85
3½x 9	2.00	2.55	2.50	3.20	12.10	13.50	17.60	19.00	3.00	3.55
4 x10	2.25	2.95	2.80	3.70	14.80	16.50	18.30	20.00	3.35	4.05
4½x10½	2.40	3.10	3.00	3.90	15.80	17.50	20.30	22.00	3.60	4.30
5 x11	2.65	3.35	3.30	4.20	16.80	18.50	22.30	24.00	4.00	4.70
6 x12½	3.30	4.05	4.10	5.05	20.40	22.00	25.40	27.00	5.00	5.75
7 x14	4.40	5.30	5.50	6.60	24.70	27.50	27.20	32.00	6.60	7.50
8 x15	5.10	6.15	6.40	7.70	27.00	30.00	32.00	35.00	7.65	8.70
9 x16¼	6.30	7.50	7.90	9.40	29.50	32.50	37.00	40.00	9.50	10.70
10 x17½	7.40	8.90	9.25	11.00	34.50	37.50	45.00	48.00	11.00	12.50
12 x20½	10.75	12.50	13.50	15.50	46.00	50.00	56.00	60.00	16.00	17.75
14 x23	15.00	17.00	18.50	21.00	55.50	60.00	75.50	80.00	22.50	24.50
15 x24½	19.00	21.50	24.00	27.00	64.00	70.00	84.00	90.00	28.50	31.00
16 x25½	22.25	25.00	28.00	31.00	78.00	85.00	93.00	100.00	33.50	36.25
18 x28	26.00	29.00	32.50	36.00	98.00	105.00	118.00	125.00	39.00	42.00
20 x30½	31.00	35.00	39.00	44.00	117.00	125.00	142.00	150.00	46.00	50.00
22 x33	36.00	41.00	45.00	51.00	140.00	150.00	165.00	175.00	54.00	59.00
24 x36	45.00	50.00	56.00	62.00	165.00	175.00	200.00	210.00	67.00	72.00

Furnished faced only, unless otherwise ordered. For malleable iron flanges, use double the list prices of cast iron.

EXTRA HEAVY REDUCING COMPANION FLANGES

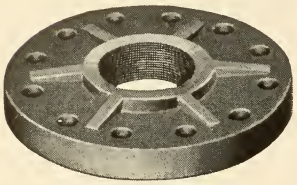


Plate E12101

WITH RIBS

FOR EXTRA HEAVY FLANGED VALVES AND FITTINGS

For Steam Working Pressure up to 250 Pounds

These flanges, used in connection with straight or reducing fittings, enable us to fill orders more promptly. Customers who desire fittings reduced in this manner will please specify "Reduce by Flanges if Necessary."

These flanges will always be of the same thickness as the regular companion flanges of corresponding outside diameters, and drilled to the template corresponding to the outside diameter, unless otherwise ordered.

In ordering reducing companion flanges always give the screwed or reduced size first, then the outside diameter of flange wanted; for instance, if a reducing flange is wanted to connect a 6-inch pipe to a 9-inch flanged valve or fitting having a 16¼-inch O. D. flange, order a 6x16¼-inch reducing flange. This will clearly avoid the confusion often caused by orders incorrectly calling for a 9x6 or a 6x9-inch flange.

New Standard Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Price, Each		Size Inches	Price, Each		Size Inches	Price, Each	
	Faced	Faced and Drilled		Faced	Faced and Drilled		Faced	Faced and Drilled
1¼x 6	1.80	2.15	3 x12½	5.50	6.25	10x20½	17.50	19.25
1½x 6½	2.10	2.45	4 x12½	5.50	6.25	8x23	25.00	27.00
1½x 7½	2.30	2.65	4½x12½	5.50	6.25	9x23	25.00	27.00
2 x 7½	2.30	2.65	5 x12½	5.50	6.25	10x23	25.00	27.00
1½x 8¼	2.65	3.10	4½x14	7.25	8.15	12x23	25.00	27.00
2 x 8¼	2.65	3.10	5 x14	7.25	8.15	8x24½	31.50	34.00
2½x 8¼	2.65	3.10	6 x14	7.25	8.15	10x24½	31.50	34.00
2 x 9	3.30	3.85	3 x15	8.40	9.45	12x24½	31.50	34.00
2½x 9	3.30	3.85	3½x15	8.40	9.45	14x24½	31.50	34.00
3 x 9	3.30	3.85	4 x15	8.40	9.45	10x25½	37.00	39.75
2 x10	3.70	4.40	5 x15	8.40	9.45	12x25½	37.00	39.75
2½x10	3.70	4.40	6 x15	8.40	9.45	14x25½	37.00	39.75
3 x10	3.70	4.40	7 x15	8.40	9.45	15x25½	37.00	39.75
3½x10	3.70	4.40	4 x16¼	10.50	11.70	12x28	43.00	46.00
2 x10½	4.00	4.70	5 x16¼	10.50	11.70	14x28	43.00	46.00
2½x10½	4.00	4.70	6 x16¼	10.50	11.70	15x28	43.00	46.00
3 x10½	4.00	4.70	7 x16¼	10.50	11.70	16x28	43.00	46.00
3½x10½	4.00	4.70	8 x16¼	10.50	11.70	14x30½	51.00	55.00
4 x10½	4.00	4.70	5 x17½	12.00	13.50	15x30½	51.00	55.00
2 x11	4.40	5.10	6 x17½	12.00	13.50	16x30½	51.00	55.00
2½x11	4.40	5.10	7 x17½	12.00	13.50	18x30½	51.00	55.00
3 x11	4.40	5.10	8 x17½	12.00	13.50	16x33	60.00	65.00
3½x11	4.40	5.10	9 x17½	12.00	13.50	18x33	60.00	65.00
4 x11	4.40	5.10	6 x20½	17.50	19.25	20x33	60.00	65.00
4½x11	4.40	5.10	7 x20½	17.50	19.25	18x36	74.00	79.00
2 x12½	5.50	6.25	8 x20½	17.50	19.25	20x36	74.00	79.00
2½x12½	5.50	6.25	9 x20½	17.50	19.25	.....	....	....

Furnished faced only, unless otherwise ordered.

TEMPLATES FOR DRILLING EXTRA HEAVY FLANGED VALVES AND FITTINGS

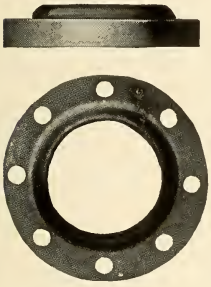


Plate E12111

SIZES 1-INCH TO 48-INCH, INCLUSIVE

These drilling templates are in multiples of four, so that fittings may be made to face in any quarter, and bolt holes straddle the center line. They can be drilled to any other template, if so desired.

Bolt holes are drilled 1/8 inch larger than nominal diameter of bolts, except that brass valves and fittings, 6-inch and smaller, have holes 1/16 inch larger than the bolts.

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	Thickness of Flanges Inches	Bolt Circle Inches	Number of Bolts	Size of Bolts Inches	Bolt Lengths Inches
1	4 1/2	11/16	3 1/4	4	1/2	2
1 1/4	5	3/4	3 3/4	4	1/2	2 1/4
1 1/2	6	13/16	4 1/2	4	5/8	2 1/2
2	6 1/2	7/8	5	4	5/8	2 1/2
2 1/2	7 1/2	1	5 7/8	4	3/4	3
3	8 1/4	1 1/8	6 5/8	8	3/4	3 1/4
3 1/2	9	1 3/16	7 1/4	8	3/4	3 1/4
4	10	1 1/4	7 7/8	8	3/4	3 1/2
4 1/2	10 1/2	1 5/16	8 1/2	8	3/4	3 1/2
5	11	1 3/8	9 1/4	8	3/4	3 3/4
6	12 1/2	1 7/16	10 5/8	12	3/4	3 3/4
7	14	1 1/2	11 7/8	12	7/8	4
8	15	1 5/8	13	12	7/8	4 1/4
9	16 1/4	1 3/4	14	12	1	4 3/4
10	17 1/2	1 7/8	15 1/4	16	1	5
12	20 1/2	2	17 3/4	16	1 1/8	5 1/2
14	23	2 1/8	20 1/4	20	1 1/8	5 3/4
15	24 1/2	2 3/16	21 1/2	20	1 1/4	6
16	25 1/2	2 1/4	22 1/2	20	1 1/4	6
18	28	2 3/8	24 3/4	24	1 1/4	6 1/4
20	30 1/2	2 1/2	27	24	1 3/8	6 3/4
22	33	2 5/8	29 1/4	24	1 1/2	7
24	36	2 3/4	32	24	1 5/8	7 1/2
26	38 1/4	2 13/16	34 1/2	28	1 5/8	8
28	40 3/4	2 15/16	37	28	1 5/8	8
30	43	3	39 1/4	28	1 3/4	8 1/2
32	45 1/4	3 1/8	41 1/2	28	1 7/8	9
34	47 1/2	3 1/4	43 1/2	28	1 7/8	9
36	50	3 3/8	46	32	1 7/8	9 1/2
38	52 1/4	3 7/16	48	32	1 7/8	9 1/2
40	54 1/2	3 9/16	50 1/4	36	1 7/8	10
42	57	3 11/16	52 3/4	36	1 7/8	10
44	59 1/4	3 3/4	55	36	2	10 1/2
46	61 1/2	3 7/8	57 1/4	40	2	10 1/2
48	65	4	60 3/4	40	2	11

PRICE LIST FOR DRILLING

STANDARD, LOW PRESSURE, MEDIUM AND EXTRA HEAVY FLANGED VALVES AND FITTINGS

Size Inches	Price, Each, for Drilling Standard and Low Pressure Valves			Price, Each, for Drilling Medium and Extra Heavy Valves		
	With Two Flanges Except Angle Valves	Angle Valves	Cross Valves and Cross Safety Valves	With Two Flanges Except Angle Valves	Angle Valves	Cross Valves
¾	.60	1.00	1.20	....	....	....
1	.60	1.00	1.20	.60	1.00	....
1¼	.60	1.00	1.20	.60	1.00	....
1½	.60	1.00	1.20	.60	1.00	....
2	.75	1.25	1.50	.75	1.25	1.50
2½	.75	1.25	1.50	.75	1.25	1.50
3	.75	1.25	1.50	.75	1.25	1.50
3½	1.00	1.50	2.00	1.00	1.50	2.00
4	1.25	1.75	2.50	1.25	1.75	2.50
4½	1.50	2.00	3.00	1.50	2.00	3.00
5	1.50	2.00	3.00	1.50	2.00	3.00
6	1.75	2.50	3.50	1.75	2.50	3.50
7	2.25	3.00	4.50	2.25	3.00	4.50
8	2.25	3.00	4.50	2.25	3.00	4.50
9	2.50	3.50	5.00	2.50	3.50	5.00
10	2.50	3.50	5.00	2.50	3.50	5.00
12	3.50	5.00	7.00	3.50	5.00	7.00
14	4.00	6.00	....	4.00	6.00	8.00
15	4.50	6.50	....	4.00	6.00	8.00
16	5.00	7.00	....	5.00	7.00	10.00
18	6.00	10.00	....	6.00	....	....
20	7.50	12.00	....	7.50	....	....
22	9.00	14.00	....	9.00	....	....
24	10.00	16.00	....	10.00	....	....
26	11.00	18.00	....	....	....	....
28	12.00	20.00	....	....	....	....
30	12.00	22.00	....	12.00	....	....
32	12.00	22.00	....	....	....	....
34	14.00	24.00	....	....	....	....
36	14.00	24.00	....	....	....	....
42	25.00	....	....	....	....	....
48	30.00	....	....	....	....	....

EXTRA NET PRICES FOR ATTACHING COMPANION FLANGES TO STANDARD FLANGED FITTINGS AND VALVES

Size Inches	Price, Each		Size Inches	Price, Each	
	For Bolting Companion Flanges to Fittings Single Flange	Wooden Protectors Bolted on with Two Bolts		For Bolting Companion Flanges to Fittings Single Flange	Wooden Protectors Bolted on with Two Bolts
1¼	.10	.20	6	.15	.25
1½	.10	.20	7	.15	.30
2	.10	.20	8	.15	.30
2½	.10	.20	9	.20	.30
3	.10	.25	10	.20	.35
3½	.10	.25	12	.20	.35
4	.10	.25	14	.20	.40
4½	.15	.25	15	.25	.40
5	.15	.25	16	.25	.45

Bolts and gaskets not included in above prices. Spot facing bolt holes, 5 cents net extra, for each hole.

MACHINE BOLTS

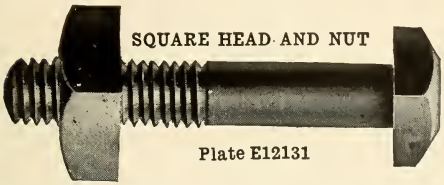


Plate E12131

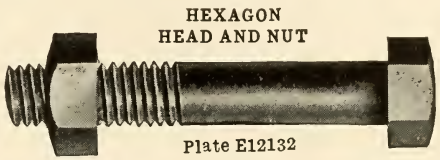


Plate E12132

SQUARE HEADS, SQUARE NUTS AND FINISHED POINTS

Manufacturers' Standard List—In Effect August 1, 1912—Price, per Hundred

Length Inches	Diameter, Inches										
	1/4	5/16	3/8	7/16	1/2	9/16 & 5/8	3/4	7/8	1	1 1/8	1 1/4
3/4 to 1 1/2	1.70	2.00	2.40	2.80	3.60	5.20	7.70	10.50	15.10	22.50	30.00
2	1.78	2.12	2.56	3.00	3.86	5.58	8.25	11.20	16.00	23.70	31.50
2 1/2	1.86	2.24	2.72	3.20	4.12	5.96	8.80	11.90	16.90	24.90	33.00
3	1.94	2.36	2.88	3.40	4.38	6.34	9.35	12.60	17.80	26.10	34.50
3 1/2	2.02	2.48	3.04	3.60	4.64	6.72	9.90	13.30	18.70	27.30	36.00
4	2.10	2.60	3.20	3.80	4.90	7.10	10.45	14.00	19.60	28.50	37.50
4 1/2	2.18	2.72	3.36	4.00	5.16	7.48	11.00	14.70	20.50	29.70	39.00
5	2.26	2.84	3.52	4.20	5.42	7.86	11.55	15.40	21.40	30.90	40.50
5 1/2	2.34	2.96	3.68	4.40	5.68	8.24	12.10	16.10	22.30	32.10	42.00
6	2.42	3.08	3.84	4.60	5.94	8.62	12.65	16.80	23.20	33.30	43.50
6 1/2	2.50	3.20	4.00	4.80	6.20	9.00	13.20	17.50	24.10	34.50	45.00
7	2.58	3.32	4.16	5.00	6.46	9.38	13.75	18.20	25.00	35.70	46.50
7 1/2	2.66	3.44	4.32	5.20	6.72	9.76	14.30	18.90	25.90	36.90	48.00
8	2.74	3.56	4.48	5.40	6.98	10.14	14.85	19.60	26.80	38.10	49.50
9	2.90	3.80	4.80	5.80	7.50	10.90	15.95	21.00	28.60	40.50	52.50
10	3.06	4.04	5.12	6.20	8.02	11.66	17.05	22.40	30.40	42.90	55.50
11	3.22	4.28	5.44	6.60	8.54	12.42	18.15	23.80	32.20	45.30	58.50
12	3.38	4.52	5.76	7.00	9.06	13.18	19.25	25.20	34.00	47.70	61.50
13	3.54	4.76	6.08	7.40	9.58	13.94	20.35	26.60	35.80	50.10	64.50
14	3.70	5.00	6.40	7.80	10.10	14.70	21.45	28.00	37.60	52.50	67.50
15	3.86	5.24	6.72	8.20	10.62	15.46	22.55	29.40	39.40	54.90	70.50
16	4.02	5.48	7.04	8.60	11.14	16.22	23.65	30.80	41.20	57.30	73.50
17	4.18	5.72	7.36	9.00	11.66	16.98	24.75	32.20	43.00	59.70	76.50
18	4.34	5.96	7.68	9.40	12.18	17.74	25.85	33.60	44.80	62.10	79.50
19	4.50	6.20	8.00	9.80	12.70	18.50	26.95	35.00	46.60	64.50	82.50
20	4.66	6.44	8.32	10.20	13.22	19.26	28.05	36.40	48.40	66.90	85.50
21	.....	.....	.....	.....	.....	.....	29.15	37.80	50.20	69.30	88.50
22	.....	.....	.....	.....	.....	.....	30.25	39.20	52.00	71.70	91.50
23	.....	.....	.....	.....	.....	.....	31.35	40.60	53.80	74.10	94.50
24	.....	.....	.....	.....	.....	.....	32.45	42.00	55.60	76.50	97.50
25	.....	.....	.....	.....	.....	.....	33.55	43.40	57.40	78.90	100.50
26	.....	.....	.....	.....	.....	.....	34.65	44.80	59.20	81.30	103.50
27	.....	.....	.....	.....	.....	.....	35.75	46.20	61.00	83.70	106.50
28	.....	.....	.....	.....	.....	.....	36.85	47.60	62.80	86.10	109.50
29	.....	.....	.....	.....	.....	.....	37.95	49.00	64.60	88.50	112.50
30	.....	.....	.....	.....	.....	.....	39.05	50.40	66.40	90.90	115.50

The following extras are to be understood as a part of this list:

Bolts with hexagon heads or hexagon nuts, 10 per cent extra. If both hexagon heads and hexagon nuts, 20 per cent extra. Joint bolts with oblong nuts, 10 per cent extra. Bolts with tee heads, askew heads and eccentric heads, 20 per cent extra. Key bolts, 20 per cent extra. Bolts with cotter holes, 25 per cent extra.

Machine bolts, when fitted with U. S. standard square nuts, add 5 per cent.

Machine bolts, when fitted with U. S. standard hexagon nuts, add 15 per cent.

DIAMOND EXPANSION BOLTS

SQUARE HEAD LAG SCREW
MALLEABLE SHIELD

Plate E12141

ROUND HEAD WOOD SCREW
COMPOSITION SHIELD

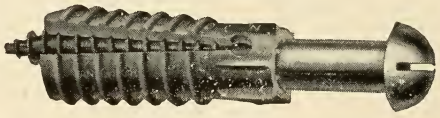


Plate E12142

MALLEABLE SHIELDS FOR ALL SIZES. COMPOSITION SHIELDS UP TO ½ INCH DIAMETER, WITH SQUARE HEAD LAG SCREWS—PRICE, PER HUNDRED

Diameter...inches		¼	5/16	⅜	7/16	½	⅝	¾	⅞	1	1¼
Length, Inches	1½	10.13	11.60	.....	.....	.....	.....	.....	.....	.....	.....
	2	10.85	11.65	.....	.....	.....	.....	.....	.....	.....	.....
	2½	11.00	11.85	15.90	20.30	24.15	31.70	48.30	.....	.....	.....
	3	11.25	12.00	16.10	20.50	24.45	32.10	48.85	.....	.....	.....
	4	11.50	12.35	16.40	20.80	25.35	32.90	50.00	.....	.....	.....
	5	11.85	12.65	16.90	21.15	25.90	33.75	51.05	.....	.....	.....
	6	12.20	13.00	17.35	21.50	26.45	34.60	52.20	68.90	79.55	.....
	7	.....	13.30	17.65	21.80	27.00	35.40	53.30	70.00	81.65	.....
	8	.....	.....	18.00	22.15	27.55	36.25	54.45	71.10	83.70	174.45
	9	.....	.....	.....	22.50	28.10	37.10	55.55	72.20	85.75	181.10
	10	.....	.....	.....	.....	.....	37.95	56.65	73.30	87.75	187.75
	11	.....	.....	.....	.....	.....	38.80	57.75	74.40	89.90	194.45
	12	.....	.....	.....	.....	.....	39.60	58.90	75.55	92.00	201.10

Hexagon head screws, 10 per cent extra.

TWO-PART MALLEABLE OR COMPOSITION SHIELDS ONLY

Diam. of Screw....inches	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1	1¼
Price.....per hundred	9.40	10.50	13.35	17.75	22.00	27.80	39.95	53.30	66.60	100.00

ONE-PART EXPANSION COMPOSITION SHIELDS ONLY

Number Inches	Number Screw	Length of Shield Inches	Outside Diameter Inches	Price per Hundred	Number Inches	Number Screw	Length of Shield Inches	Outside Diameter Inches	Price per Hundred
⅛x ½	5–6–7	½	¼	4.40	¼x2	12–13–14	2	⅜	7.80
⅛x ⅝	5–6–7	⅝	¼	4.40	¼x2½	12–13–14	2½	⅜	8.95
⅛x ¾	5–6–7	¾	¼	4.40	5/16x ¾	15–16–17–18	¾	7/16	6.25
3/16x ½	8–9–10–11	½	¼	5.00	5/16x1	15–16–17–18	1	7/16	6.25
3/16x ¾	8–9–10–11	¾	5/16	5.00	5/16x1⅜	15–16–17–18	1⅜	½	7.20
3/16x1	8–9–10–11	1	5/16	5.00	5/16x1½	15–16–17–18	1½	7/16	7.50
3/16x1	8–9–10–11	1	⅜	5.00	5/16x2	15–16–17–18	2	7/16	8.75
3/16x1⅝	9–10–11	1⅝	5/16	6.25	⅜x1¼	22–23–24	1¼	9/16	8.25
¼x ½	12–13–14	½	⅜	5.60	⅜x2	22–23–24	2	9/16	9.50
¼x ¾	12–13–14	¾	⅜	5.60	½x2	26–28–30	2	¾	14.50
¼x1	12–13–14	1	⅜	5.60	⅝x2	⅝-in. Lag Screw	2	⅞	18.00
¼x1½	12–13–14	1½	⅜	6.75	⅝x3½	⅝-in. Lag Screw	3½	⅞	21.00

ONE-PART EXPANSION BOLTS, COMPLETE, WITH FLAT, ROUND OR OVAL HEAD BRIGHT IRON SCREWS—Shields not Longer than 1 Inch

Diameter of Anchor, Inches	Number of Screws	Length of Screw, Inches				
		¾	1	1½	2	2½
⅛	5–6–7	4.60	4.65	4.70	....	....
3/16	8–9–10–11	5.25	5.30	5.35	5.40	....
¼	12–13–14	5.90	5.95	6.05	6.10	....
5/16	15–16–17–18	....	6.85	7.10	7.20	7.30

TOGGLE AND EXPANSION BOLTS, ETC.

DIAMOND TOGGLE BOLTS

BOLT ASSEMBLED

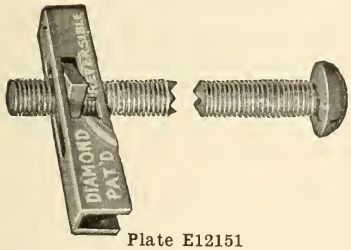


Plate E12151

Made with pressed head in one piece. An ordinary stove bolt nut is inserted in the slot as shown and when bolt is inserted is locked into the toggle head.

Plate E12152

Size of Screw .....inches	3/16x3	3/16x3 1/2	3/16x4	3/16x5	3/16x6	1/4x3 1/2	1/4x4	1/4x5	1/4x6
Price, with Rd. or Flat Head Bolts. . per 100	4.50	4.70	5.00	5.20	5.70	6.50	6.90	7.90	8.50
" " Loose Head Bolts, Brass. "	5.00	5.20	5.40	5.80	6.20	7.00	7.40	8.40	9.60
" " " " " N. P.. "	6.00	6.20	6.40	6.80	7.20	8.20	8.60	9.60	10.80

AJAX EXPANSION BOLT

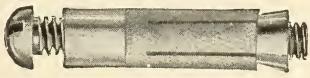


Plate E12153

EUSTIS EXPANSION BOLT

Plate E12154

AJAX EXPANSION BOLTS

Price, per 100

Length of Bolt Inches	Size, Inches 1/8	3/16	1/4
1	5.50	6.00	9.00
1 1/4	6.00	6.50	9.50
1 1/2	6.50	7.00	10.00
2	7.50	8.00	11.50
2 1/2	....	10.00	13.50
3	....	12.50	16.00
4	....	.....	24.00
Machine Screw	6–32 or 8–32	10–24	14–20
Length of Shell . . inches	7/8 and 1 1/4	7/8 and 1 1/4	7/8 and 1 1/4
Diam. " " . . "	5/16	5/16	3/8
Price, Shells only, 7/8-inch. . each	4.50	4.50	6.50
" " " 1 1/4 " . . "	5.50	5.50	7.50

EUSTIS EXPANSION BOLTS

Size .....inches	3/4	1	1 1/4	1 1/2	2
Price.....per 100	6.50	7.00	8.80	9.55	11.25

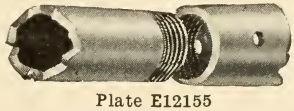


Plate E12155

DIEXCO EXTENSION DRILLS

Diexco Drill Heads are made of tool steel and carefully tempered. Can be made any length by use of pipe cut to length desired. Are tapped standard pipe sizes.

Number.....	2	3	4	5	5A	6	6A
Size of Pipe for Handle . . inches	1/8	1/4	3/8	1/2	1/2	3/4	3/4
Will Drill Hole..... "	9/16	11/16	7/8	1	1 1/8	1 1/4	1 3/8
Price, without Pipe .....each	.25	.25	.25	.25	.30	.35	.65
Number.....	7	7A	8	9	9A	10	10A
Size of Pipe for Handle . . inches	3/4	1	1	1	1	1	1
Will Drill Hole..... "	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3
Price, without Pipe.....each	.75	.90	1.00	1.50	1.85	2.25	2.60

PIPE CLAMPS AND SADDLES

MALLEABLE IRON, WITH WROUGHT IRON STRAPS

WATER PIPE CLAMPS

Plate E12161

Plate E12162

STEAM PIPE SADDLE

Plate E12163

WATER PIPE CLAMPS

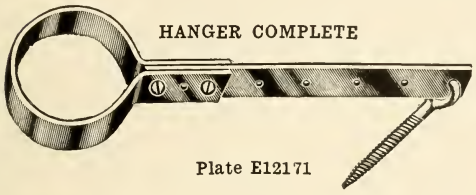
Number	Clamps will Fit: Outside Diameter of Circle, Inches	Size, Wrought Iron Pipe, Inches	Size, Outside Diameter, Casing Inches	Size, Cast Iron Pipe, Inches	Size of Wrought Iron Pipe Connections Pipe Clamps are Tapped for, Inches	Price, Each	Number	Clamps will Fit: Outside Diameter of Circle, Inches	Size, Wrought Iron Pipe, Inches	Size, Outside Diameter, Casing Inches	Size, Cast Iron Pipe, Inches	Size of Wrought Iron Pipe Connections Pipe Clamps are Tapped for, Inches	Price, Each
0	17⅞	1½	2	....	½ and ¾	1.00	19	6⅝	6	6⅝	....	¾ to 1½	2.25
1	2⅜	2	2½	....	½ to 1	1.00	20	6⅝	6	6⅝	....	2	2.50
2	2⅞	2½	2¾&3	2	½ to 1¼	1.25	21	6⅝	6	6⅝	....	2½ and 3	5.00
3	3½	3	3½	....	½ to 1	1.25	22	7	.....	7	6	¾ to 1½	2.50
4	3½	3	3½	....	1¼ to 2	1.50	23	7	.....	7	6	2	2.70
5	4	3½	4	3	½ to 1	1.50	24	7	.....	7	6	2½ and 3	5.00
6	4	3½	4	3	1¼ to 2	1.75	25	7⅝	7	7⅝	....	¾ to 1½	2.50
7	4½	4	4½	....	½ to 1½	1.75	26	7⅝	7	7⅝	....	2	2.70
8	4½	4	4½	....	2	2.00	27	7⅝	7	7⅝	....	2½ and 3	5.00
9	4½	4	4½	....	2½ and 3	4.00	28	8	.....	8	7	¾ to 1½	4.50
10	5	4½	5	4	¾ to 1½	1.80	29	8	.....	8	7	2	5.00
11	5	4½	5	4	2	2.15	30	8	.....	8	7	2½ and 3	5.50
12	5	4½	5	4	2½ and 3	4.00	30½	8⅝	8	8⅝	....	¾ to 1½	5.50
13	5½	5	5½	....	¾ to 1½	1.80	31	8⅝	8	8⅝	....	2 to 3	5.50
14	5½	5	5½	....	2	2.15	32	8⅝	8	8⅝	....	4	6.00
15	5½	5	5½	....	2½ and 3	4.00	33	9⅝	9	.....	....	1½ to 3	8.00
16	6	....	6	5	½ to 1½	2.00	34	10	.....	10	9	¾ " 2	9.00
17	6	....	6	5	2	2.40	35	10¾	10	.....	....	¾ " 2	9.00
18	6	....	6	5	2½ and 3	4.50	36	12¾	12	.....	....	¾ " 2	10.00

Always order water pipe clamps by number.
Sizes Nos. 33, 34 and 36 have malleable iron strap.

STEAM PIPE SADDLES

Size of Pipe...in.	1½	2	2½	3	3½	4	4½
Tapped for Pipe....in.	½ and ¾	½ to 1½	¾ to 1½	¾ to 2	¾ to 2	¾ to 2	¾ to 2
Price.....each	.90	1.00	1.25	1.25	1.40	1.50	2.50
Size of Pipe...in.	5	5	6	6	7	8	9
Tapped for Pipe....in.	¾ to 2	2½ and 3	¾ to 2	2½ to 4	1 to 4	1 to 4	1½ to 4
Price.....each	2.75	2.75	2.75	5.75	6.50	6.50	8.50
Size of Pipe...in.	10	10	12	12	15	16	....
Tapped for Pipe....in.	1½ to 4	4½ to 6	1½ to 4	4½ to 6	3 to 6	3 to 6	....
Price.....each	10.00	10.00	14.00	14.00	22.00	25.00	....

ADJUSTABLE PIPE HANGERS



HANGER COMPLETE

Plate E12171

PERFORATED EXTENSION BAR

Plate E12172

ADJUSTABLE STEEL HANGERS

Size of Pipe.....inches	½	¾	1	1¼	1½	2	2½	3
Adjustable Length, 2 to 10 inches...each	.18	.18	.18	.20	.22	.25	.30	.35
" " 10 " 16 " ... "	.21	.21	.21	.23	.25	.28	.33	.38
" " 16 " 22 " ... "	.24	.24	.24	.26	.28	.31	.36	.41
Rings with Bolts..... "	.08	.08	.09	.10	.12	.14	.16	.18
Size of Pipe.....inches	3½	4	4½	5	6	7	8	....
Adjustable Length, 2 to 10 inches...each	.37	.45	.50	.58	.70	1.05	1.20	....
" " 10 " 16 " ... "	.40	.48	.53	.61	.74	1.10	1.25	....
" " 16 " 22 " ... "	.43	.51	.56	.64	.79	1.15	1.30	....
Rings with Bolts.....	.20	.25	.30	.35	*.90	*1.10	*1.30	....

*Extra heavy.

Hanger screws: No. 1, small, 5 cents; No. 2, large, 10 cents each.

PERFORATED EXTENSION BARS

Number 5 furnished in 8-foot lengths; Number 4 and smaller in 5-foot lengths.

Number.....	00	0	1	2	3	4	5
Width.....inches	⅝	¾	⅞	1	1⅛	1¼	1¼
Gauge of Steel.....	14	14	14	12	10	10	3/16
Price.....per foot	.08	.08	.08	.09	.10	.20	.28

"FITALL" HANGER STRAPS

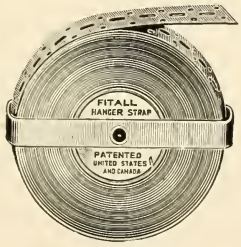


Plate E12173

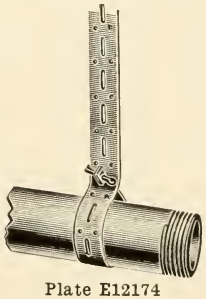


Plate E12174

Made from cold-rolled galvanized steel, ⅞ or 1 inch wide. The No. 1 is guaranteed to hold securely any pipe up to 3 inches in diameter, and the No. 3, any pipe up to 5 inches in diameter. Put up in coils of 100 feet each. 100 cotter pins free with each coil, both packed securely in cardboard boxes.

Price, No. 1 or ⅞inch x24 gauge.....per coil	3.25
" " 3 " 1 " x20 " ..... "	4.00

EXPANSION PIPE HANGERS

STYLE S
For 6-inch Pipe and Smaller

Plate E12181

STYLE SS
For 8-inch Pipe and Smaller

Plate E12182

WITH SOLID RING
For 8-inch Pipe and Smaller

Plate E12183

STYLE S WITH SECTIONAL RING

Size.....inches	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price .....each	.32	.33	.35	.45	.55	.65	.80	1.00	1.15	1.60	2.00	2.50	3.00	3.75
Size of Pipe, Rings and Buttons are Tapped for..inches	⅛	⅛	⅛	¼	¼	¼	⅜	⅜	⅜	⅜	¾	¾	¾	¾

STYLE SS WITH BEAM CLAMP

Size....inches	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price....each	1.00	1.00	1.05	1.15	1.25	1.35	1.50	1.70	1.85	3.35	3.75	4.25	4.75	5.50
S. of P., R. and B. are Tapped for, in.	⅛	⅛	⅛	¼	¼	¼	⅜	⅜	⅜	⅜	¾	¾	¾	¾

Beam clamps only, up to 4½-inch, .75 each; 5 to 8-inch, 1.75 each.

WITH SOLID RING

Size.....inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price, Complete.....each	.17	.17	.18	.19	.25	.29	.36	.44	.55	.63	.90	1.12	1.35	1.80	2.25
Size of Pipe, Rings and Buttons are Tapped for, in.	¼	⅜	⅜	⅜	⅜	⅜	½	½	½	½	½	¾	¾	¾	¾

PARTS OF SOLID RING EXPANSION PIPE HANGERS

Size .....inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price, Plates.....each	.08	.08	.08	.08	.09	.09	.10	.10	.10	.10	.10	.10	.10	.10	.10
" Buttons..... "	.06	.06	.06	.06	.07	.07	.08	.08	.08	.08	.08	.08	.08	.08	.08
" Rings..... "	.08	.08	.12	.15	.20	.25	.30	.40	.50	.60	.80	1.00	1.25	1.70	2.15

Prices do not include such parts as expansion pipe, rod, or turnbuckles; these will be at an extra price and furnished only when so specified. If expansion pipe or rod is desired, state distance from center of pipe to support.

HOOK PLATES AND PIPE HANGERS

CAST IRON HOOK PLATE

Plate E12191

GRABLER STEEL HOOK PLATE (Patented)

Plate E12192

SINGLE HOOK

Plate E12193

SOLID RING PIPE HANGER

Plate E12194

HANNA BALL JOINT HANGERS

No. 1

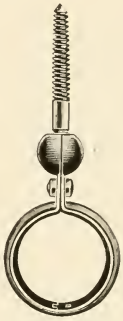


Plate E12195

No. 3

Plate E12196

CAST IRON HOOK PLATES

Number of Hooks	Single	2	3	4	5	6
For 1 -in. Pipe, 2½ in. between Centers...each	.09	.18	.23	.26	.32	.38
" 1¼ " " 3 " " " ... "	.10	.21	.27	.32	.41	.52
" 1½ " " 3½ " " " ... "	.15	.28	.43	.58	.72	.88
" 2 " " 4½ " " " ... "	.22	.43	.65	.90	1.15	1.35

GRABLER SECTIONAL STEEL HOOK PLATES

Number of Hooks	30	30	25	20
For Pipe ....inches	1	1¼	1½	2
Price....each	2.50	3.25	3.75	4.25

Furnished in long strips. As many hooks as desired can be easily cut off at ribs shown.

SOLID RING PIPE HANGERS

Size....inches	⅜	½	¾	1	1¼	1½	2
Price, Plain Iron....per 100	5.00	5.00	5.80	7.75	10.00	14.00	22.00
" Galvanized Iron.... "	6.50	6.50	7.00	9.00	12.00	16.00	25.00
" Polished Brass....each	.34	.34	.36	.40	.55	.80	1.10
" Nickel-plated Brass.... "	.36	.36	.38	.45	.60	.90	1.25

HANNA BALL JOINT HANGERS

Size....inches	½	¾	1	1¼	1½	2	2½	3
Price, No. 1.... each	.15	.18	.18	.20	.22	.25	.30	.35
" " 3.... "	.30	.33	.33	.35	.37	.40	.55	.62

Size....inches	3½	4	5	6	7	8	10	12
Price, No. 1.... each	.37	.45	.58	.70	1.05	1.20	1.60	1.90
" " 3.... "	.70	.83	1.05	1.20	1.55	1.70	2.00	2.30

PIPE HOOKS AND STRAPS

GAS PIPE HOOK

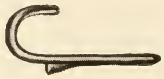


Plate E12201

SOIL PIPE HOOK

Plate E12202

TINNED STRAP

Plate E12203

GAS PIPE HOOKS

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Weight, per 100 ..pounds	1	1 1/4	1 3/4	3	3 3/4	6	6	9 1/4
Price.....per 100	.45	.55	.65	.80	1.00	1.30	1.60	2.00

WROUGHT IRON SOIL PIPE HOOKS

Size.....inches	2	3	4	5	6
Price.....each	.08	.11	.13	.16	.20

TINNED PIPE STRAPS

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Weight, per 100.....pounds	1 1/2	1 3/4	2 1/2	3 1/2	5	7 3/4	10	11 1/2
Price.....per pound	.30	.30	.30	.30	.30	.30	.30	.30

REZNOR STEEL WIRE PIPE HOOK

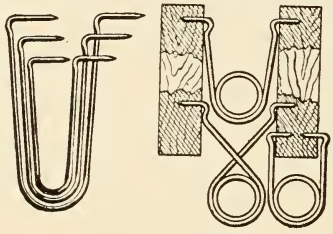


Plate E12204

SPRINKLER CLIP

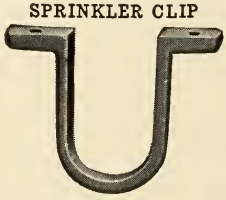


Plate E12205

REZNOR STEEL WIRE PIPE HOOKS

Pipe Size Inches	Length of Hook, Inches, and Price, per Thousand							
	3	4	5	6	7	8	10	12
3/8	5.10	5.60	6.30	7.00	.....	.....	.....	.....
1/2	5.40	6.10	6.80	7.70	8.60	9.60	.....	.....
3/4	....	6.60	7.30	8.40	9.50	10.90	.....	.....
1	....	7.50	8.80	10.00	11.10	12.30	14.00	.....
1 1/4	....	9.60	11.00	12.60	14.00	15.40	17.40	.....
1 1/2	....	....	12.00	13.60	15.00	16.60	19.40	22.60
2	....	....	12.40	14.00	15.40	17.00	21.40	23.00

CAST IRON CLIPS

FOR SPRINKLER PIPES

Size.....inches	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price, Short .....each	.15	.16	.18	.20	.25	.30	.40	.50	.65
" Long..... "	.17	.18	.20	.22	.27	.35	.45	.60	.75

ROUGH BRASS FITTINGS

MALLEABLE IRON PATTERN, IRON PIPE THREAD

For Steam Working Pressure up to 125 Pounds

ELBOW

Plate E12211

TEE

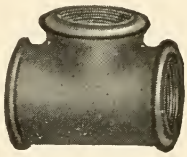


Plate E12212

CROSS

Plate E12213

UNION

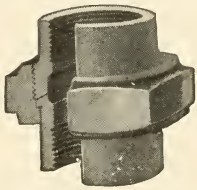


Plate E12214

Effective January 1, 1915

Size .....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Elbows, 90° .....each	.12	.15	.20	.28	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00
" Reducing ..... "	..	.19	.25	.35	.50	.80	1.10	1.50	2.50	4.25	7.50	10.00	12.50
" 45° ..... "	.16	.20	.25	.31	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00
" Street ..... "	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	6.00	10.00	....	....
Tees ..... "	.17	.21	.28	.40	.55	.85	1.25	1.70	2.80	5.00	8.50	11.00	14.00
" Reducing ..... "	..	.25	.35	.50	.70	1.05	1.55	2.10	3.50	6.25	10.50	14.00	17.50
Crosses ..... "	.25	.30	.40	.55	.80	1.25	1.80	2.40	4.00	7.00	12.00	16.00	20.00
" Reducing ..... "	..	.38	.50	.70	1.00	1.55	2.25	3.00	5.00	8.75	15.00	20.00	25.00
Couplings ..... "	.10	.13	.17	.25	.37	.55	.80	1.00	1.60	2.50	3.50	5.25	7.00
" R. and L. ..... "	.13	.17	.22	.30	.45	.70	1.00	1.30	2.00	3.10	4.50	....	....
" Reducing ..... "	..	.15	.20	.28	.40	.60	.90	1.10	1.75	2.75	4.00	6.00	8.00
Bushings, Regular ..... "	..	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	3.75	5.00
" Faced ..... "	..	.12	.15	.19	.27	.44	.62	.87	1.25	1.85	3.10	4.75	6.25
Plugs ..... "	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	3.75	5.00
Caps ..... "	.10	.13	.16	.20	.30	.42	.60	.80	1.25	2.50	3.50	5.50	7.00
Locknuts ..... "	.10	.10	.12	.15	.20	.28	.40	.55	.80	1.75	2.75	4.00	5.00
Return Bends, Close ..... "	..	..	.55	.70	1.00	1.25	1.80	2.50	4.25	7.00	10.00	....	....
" " Open ..... "	..	..	.60	.80	1.10	1.40	2.15	3.00	4.75	8.25	11.00	....	....
"Y" Bends ..... "	..	..	.60	.75	1.10	1.65	2.50	3.30	5.50	9.50	16.00	21.00	26 00
Unions ..... "	.40	.50	.65	.85	1.15	1.60	2.25	2.70	4.00	7.50	11.50	20.00	27.00

Elbows tapped right and left-hand, add 25 per cent to list.

Right and left elbows, tees, crosses, reducers and bushings, reducing more than two sizes, add 25 per cent to list.

BRASS FITTINGS

MALLEABLE IRON PATTERN, IRON PIPE THREAD

For Steam Working Pressure up to 125 Pounds

Effective January 1, 1915

FINISHED

Size .....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Elbows, 90°.....each	.30	.35	.45	.56	.75	1.10	1.55	2.00	3.00	5.50	9.00	14.00	17.50
" Reducing.. "	..	.44	.55	.70	.95	1.40	1.90	2.50	3.75	6.75	11.25	17.50	22.00
" 45°..... "	.38	.45	.55	.66	.85	1.23	1.70	2.20	3.25	6.00	9.75	15.50	19.50
" Street..... "	.47	.52	.63	.83	1.08	1.45	2.30	3.00	4.50	8.50	13.75	....	....
Tees..... "	.42	.49	.63	.80	1.05	1.50	2.15	2.80	4.20	7.75	12.75	19.50	24.50
" Reducing..... "	..	.60	.77	1.00	1.30	1.85	2.65	3.50	5.25	9.75	15.80	24.50	30.50
Crosses..... "	.60	.70	.90	1.10	1.50	2.20	3.10	4.00	6.00	11.00	18.00	28.00	35.00
" Reducing... "	..	.88	1.10	1.40	1.85	2.75	3.85	5.00	7.50	13.75	22.50	35.00	44.00
Couplings ..... "	.24	.28	.36	.46	.63	.90	1.30	1.60	2.35	4.00	5.75	9.75	12.50
" R. and L. "	.31	.37	.47	.58	.80	1.15	1.65	2.10	3.00	5.10	7.50	....	....
" Reducing "	..	.35	.45	.56	.75	1.05	1.55	1.90	2.75	4.75	7.00	12.00	15.50
Bushings, Regular. "	..	.22	.27	.35	.47	.70	1.00	1.40	2.00	3.00	4.50	6.25	8.00
Plugs ..... "	.23	.30	.37	.43	.55	.75	1.00	1.30	1.95	3.00	4.25	6.25	8.00
Caps..... "	.20	.25	.31	.40	.55	.77	1.10	1.50	2.25	4.00	5.50	8.00	10.00
Locknuts..... "	.24	.25	.32	.40	.50	.65	.85	1.10	1.60	3.25	4.75	6.50	8.00
Return Bends, Close..... "	..	....	1.30	1.55	2.05	2.65	3.75	4.90	7.25	13.00	19.00	....	....
" " Open..... "	..	....	1.35	1.65	2.15	2.80	4.10	5.40	7.75	14.25	20.00	....	....
"Y" Bends..... "	..	....	1.35	1.60	2.15	3.05	4.45	5.70	8.50	15.50	25.00	33.00	41.00
Unions..... "	.50	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00	9.00	14.00	25.00	33.00

NICKEL-PLATED

Size .....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Elbows, 90°.....each	.36	.42	.53	.65	.87	1.25	1.75	2.25	3.35	6.15	10.00	16.00	20.00
" Reducing.. "	..	.52	.65	.82	1.10	1.60	2.15	2.85	4.15	7.60	12.50	20.00	25.00
" 45°..... "	.45	.53	.65	.78	1.00	1.43	1.95	2.55	3.65	6.85	11.00	18.00	22.50
" Street..... "	.54	.60	.73	.95	1.23	1.65	2.55	3.35	4.90	9.35	15.00	....	....
Tees ..... "	.50	.58	.75	.93	1.22	1.70	2.45	3.15	4.65	8.65	14.00	22.30	28.00
" Reducing ..... "	..	.72	.90	1.15	1.50	2.10	3.00	3.95	5.85	10.90	17.50	28.00	35.00
Crosses. ..... "	.72	.84	1.05	1.30	1.75	2.50	3.50	4.50	6.70	12.30	20.00	32.00	40.00
" Reducing... "	..	1.05	1.30	1.65	2.15	3.15	4.35	5.70	8.30	15.40	25.00	40.00	50.00
Couplings ..... "	.29	.33	.42	.53	.72	1.00	1.45	1.80	2.60	4.50	6.50	11.25	14.25
" R. and L. "	.37	.44	.55	.67	.92	1.30	1.85	2.35	3.35	5.75	8.50	....	....
" Reducing "	..	.42	.53	.65	.87	1.20	1.75	2.15	3.10	5.40	8.00	14.00	18.00
Bushings, Regular. "	..	.26	.32	.42	.55	.82	1.15	1.65	2.35	3.50	5.15	7.10	9.00
Plugs ..... "	.28	.37	.45	.52	.67	.90	1.20	1.55	2.30	3.50	4.90	7.10	9.00
Caps..... "	.23	.29	.36	.47	.63	.89	1.25	1.75	2.60	4.50	6.15	8.85	11.00
Locknuts ..... "	.29	.30	.39	.48	.60	.77	1.00	1.30	1.85	3.75	5.40	7.35	9.00
Return Bends, Close..... "	..	....	1.55	1.85	2.40	3.10	4.40	5.70	8.25	15.00	22.00	....	....
" " Open..... "	..	....	1.60	1.95	2.50	3.25	4.75	6.20	8.75	16.25	23.00	....	....
"Y" Bends..... "	..	....	1.60	1.90	2.50	3.50	5.10	6.50	9.50	17.50	28.00	37.00	46.00
Unions..... "	.60	.72	1.02	1.26	1.68	2.28	3.30	3.90	6.00	10.80	16.80	30.00	39.60

Elbows tapped right and left-hand, add 25 per cent to list.

Right and left elbows, tees, crosses, reducers and bushings, reducing more than two sizes, add 25 per cent to list.

RAILING FITTINGS

FINISHED BRASS

No. 1
ELBOW

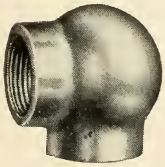


Plate E12231

No. 2
SIDE OUTLET ELBOW

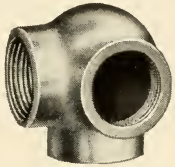


Plate E12232

No. 3
TEE

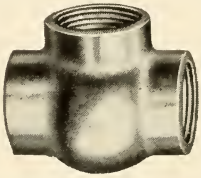


Plate E12233

No. 4
SIDE OUTLET TEE

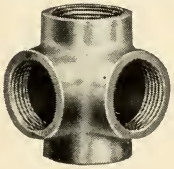


Plate E12234

No. 5
CROSS

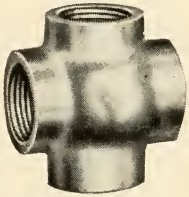


Plate E12235

No. 6
SIDE OUTLET CROSS

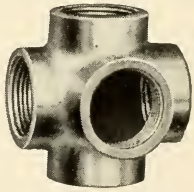


Plate E12236

No. 7
FLANGE

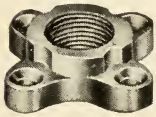


Plate E12237

No. 9
ACORN

Plate E12238

No. 8
FLOOR FLANGE

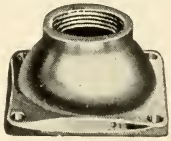


Plate E12239

Size ..... inches	½	¾	1	1¼	1½	2
Price, No. 1, Elbows ..... each	.40	.60	.80	1.20	1.60	2.50
" " 2, Side Outlet Elbows ..... "	.75	1.00	1.10	1.70	2.00	3.00
" " 3, Tees ..... "	.60	.85	1.10	1.70	2.00	3.00
" " 4, Side Outlet Tees ..... "	1.05	1.25	1.50	2.00	2.40	3.50
" " 5, Crosses ..... "	1.05	1.25	1.50	2.00	2.40	3.50
" " 6, Side Outlet Crosses ..... "	1.20	1.45	1.70	2.25	3.00	4.00
" " 7, Flanges ..... "	.26	.35	.40	.70	.95	1.30
" " 8, Floor Flanges ..... "	.60	.90	1.00	1.35	1.75	2.50
" " 9, *Acorns ..... "	.60	.90	1.00	1.35	1.75	2.50

*Male or female.

In ordering railing fittings, describe kind wanted by number and size. Railing fittings will always be furnished with all openings tapped right-hand, unless otherwise specified. Railing fittings tapped right and left or left-hand will be charged for at 15 per cent additional, net. Reducing fittings furnished promptly from factory.

BRASS FITTINGS, ETC.

NIPPLES, IRON PIPE SIZE

CLOSE

Plate E12241

LONG

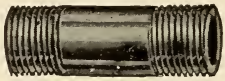


Plate E12242

Size Inches	Length Close Inches	Length, Inches										
		Close	1½	2	2½	3	3½	4	4½	5	5½	6
⅛	¾	.11	.13	.15	.17	.19	.21	.23	.25	.27	.29	.31
¼	⅞	.13	.16	.19	.22	.25	.28	.31	.34	.37	.40	.43
⅜	1	.15	.19	.23	.27	.31	.35	.39	.43	.47	.51	.55
½	1⅛	.23	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70
¾	1⅜	.28	....	.35	.42	.49	.56	.63	.70	.77	.84	.91
1	1½	.37	....	.44	.53	.62	.71	.80	.89	.98	1.07	1.16
1¼	1⅝	.60	....	....	.75	.88	1.01	1.14	1.27	1.40	1.53	1.66
1½	1¾	.70	....	....	.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95
2	2	1.00	....	....	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60
2½	2½	1.70	....	....	....	2.00	2.30	2.60	2.90	3.20	3.50	3.80
3	2½	2.50	....	....	....	2.90	3.30	3.70	4.10	4.50	4.90	5.30
3½	2¾	4.00	....	....	....	....	....	5.40	6.00	6.60	7.20	7.80
4	3	4.75	....	....	....	....	....	6.15	6.85	7.55	8.25	8.95
4½	3	5.50	....	....	....	....	....	7.20	8.05	8.90	9.75	10.60
5	3½	8.50	....	....	....	....	....	....	10.60	11.65	12.70	13.75
6	3½	11.50	....	....	....	....	....	....	14.10	15.40	16.70	18.00

Polished brass nipples, longer than close, 25 per cent extra.

TABLE OF LENGTHS OF CLOSE AND SHORT NIPPLES

Size.....inches	⅛	¼	⅜	½	¾	1	1¼
Length, Close.....inches	¾	⅞	1	1⅛	1⅜	1½	1⅝
" Short..... "	1½	1½	1½	1½	2	2	2½
" Shoulder..... "	1½	1½	1½	1½	2	2	2½

Size .....inches	1½	2	2½	3	3½	4	.....
Length, Close.....inches	1¾	2	2½	2½	2¾	3	.....
" Short..... "	2½	2½	3	3	4	4	.....
" Shoulder..... "	2½	2½	3	3	4	4	.....

SEAMLESS BRASS TUBING

IRON PIPE SIZE

Plate E12243

Extras over Base Prices

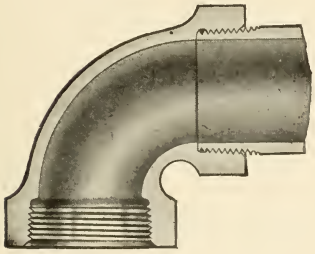
Iron Pipe Size .....inches	⅛	¼	⅜	½	¾	1	1¼	1½	2
Approx. Wt. per Foot....pounds	.25	.43	.62	.9	1.25	1.7	2.5	3	4
Price.....per pound	.08	.07	.02	.01	BASE PRICE				

Iron Pipe Size .....inches	2½	3	3½	4	4½	5	6	7	8
Approx. Wt. per Foot....pounds	5.75	8.3	10.9	12.7	13.9	15.75	18.31	26.28	29.88
Price.....per pound	BASE PRICE		.01	.02	.04	.06	.07	.09	.11

Stock lengths. 12 feet.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe



As shown in the accompanying sectional illustration these fittings are made with a shoulder, and being the same diameter as the inside of the pipe, a continuous passage is made when the pipe is screwed up to the shoulder, thus allowing no place for solid matter to collect and clog the pipe. All are recessed to allow easy access of pipe. All 90-degree fittings are tapped, pitched ¼ inch to the foot. All fittings are regularly furnished asphalted but may be furnished plain or galvanized. They may also be furnished in malleable iron or brass, at special price. Any regular fitting may be furnished with one or more ends for hub connections for cast pipe. Prices special.

90° ELBOW

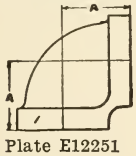


Plate E12251

45° ELBOW

Plate E12252

60° ELBOW

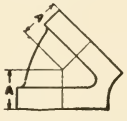


Plate E12253

90° AND 45° ELBOWS

Size..... inches	1¼	1½	1½x1¼	2	2½	3	4	5	6	7	8	10
Dimension A, 90°. inches	2	2 3/16	2 3/16	2 5/8	3	3 3/8	4 1/8	4 11/16	5 3/8	5 7/8	6 3/4	8
" A, 45° " "	1 7/16	1 5/8	....	1 7/8	2	2 5/16	2 5/8	3	3 5/16	3 1/2	3 3/4	4 1/2
Price, 90° and 45°, Blk. ea	.30	.38	.57	.57	1.20	1.45	2.30	4.25	6.25	11.50	15.00	31.00
" 90° " 45°, Galv. "	.52	.67	1.00	1.00	2.10	2.55	4.00	7.40	11.00	20.00	26.25	54.00

60° ELBOWS

Size..... inches	1¼	1½	2	2½	3	4	5	6	7	8	10
Dimension A.... inches	1½	1 7/8	1 5/16	2½	2 11/16	2 7/8	3½	4	4¼	4 5/8	5½
Price, Black..... each	.30	.38	.57	1.20	1.45	2.30	4.25	6.25	11.50	15.00	31.00
" Galvanized "	.52	.67	1.00	2.10	2.55	4.00	7.40	11.00	20.00	26.25	54.00

22½° ELBOW

Plate E12254

11¼° ELBOW

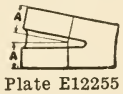


Plate E12255

5⅝° ELBOW

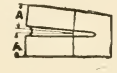


Plate E12256

22½° AND 11¼° ELBOWS

Size..... inches	1¼	1½	2	2½	3	4	5	6	7	8	10
Dimension A, 22½°.... inches	1 3/16	1¼	1 7/16	1 3/4	2	2 5/16	2 5/8	2 5/16	3 1/4	3 9/16	3 3/4
" A, 11¼°.... "	1 1/8	1 7/32	1 13/32	1 21/32	1 13/16	2 1/8	2 3/8	2½	2 7/8	3	3 1/8
Price, 22½° and 11¼°, Blk.. ea.	.30	.38	.57	1.20	1.45	2.30	4.25	6.25	11.50	15.00	31.00
" 22½° " 11¼°, Galv.. "	.52	.67	1.00	2.10	2.55	4.00	7.40	11.00	20.00	26.25	54.00

5⅝° ELBOWS

Size..... inches	1¼	1½	2	2½	3	4	5	6	7	8	10
Dimension A.... inches	1 1/8	1¼	1 7/16	1½	1 9/16	1 7/8	1 7/8	2¼	2½	2½	2 7/8
Price, Black..... each	.30	.38	.57	1.20	1.45	2.30	4.25	6.25	11.50	15.00	31.00
" Galvanized "	.52	.67	1.00	2.10	2.55	4.00	7.40	11.00	20.00	26.25	54.00

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

90° LONG TURN ELBOW

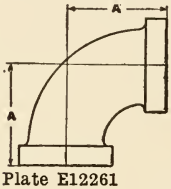


Plate E12261

45° LONG TURN ELBOW

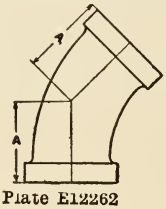


Plate E12262

90° ELBOWS, LONG TURN

Size ..... inches	1¼	1½	2	2½	3	4	5	6	7	8	10
Dimension A .... inches	2¾	3 7/16	3⅞	4¾	5¼	6⅛	7¼	8¼	8¼	9¼	12¼
Price, Black ..... each	.35	.42	.65	1.40	1.75	2.75	5.25	7.50	13.50	19.00	38.00
" Galvanized. "	.60	.72	1.15	2.45	3.10	4.80	9.20	13.15	23.50	33.25	66.50

45° ELBOWS, LONG TURN

Size ..... inches	1¼	1½	2	3	4	5	6	7	8	10
Dimension A ..... inches	1½	1⅞	2¼	3	3½	4⅛	5½	6¼	6¾	7½
Price, Black ..... each	.35	.42	.65	1.75	2.75	5.25	7.50	13.50	19.00	38.00
" Galvanized..... "	.60	.72	1.15	3.10	4.80	9.20	13.15	23.50	33.25	66.50

45° ELBOWS, SPECIAL LONG TURN

Size ..... inches	1½	2	3	4	5	6
Dimension A ..... inches	2 3/16	3 5/16	4⅜	4⅜	5 7/16	6½
Price, Black ..... each	.42	.65	1.75	2.75	5.25	7.50
" Galvanized ..... "	.72	1.15	3.10	4.80	9.20	13.15

THREE-WAY ELBOW

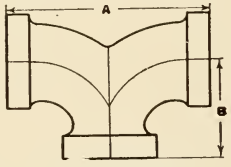


Plate E12263

REDUCING THREE-WAY ELBOW

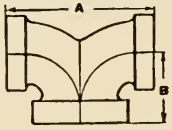


Plate E12264

THREE-WAY ELBOWS

Size ..... inches	1¼	1½	2	2½	3	4	5	6
Dimension A ..... inches	5½	6⅞	7¾	9⅛	10½	12¼	14½	16½
" B ..... "	2¾	3 7/16	3⅞	4 9/16	5¼	6⅛	7¼	8¼
Price, Black ..... each	.75	.85	1.10	2.25	3.00	5.00	7.50	13.50
" Galvanized..... "	1.25	1.50	1.95	3.90	5.25	8.75	13.15	23.50

REDUCING THREE-WAY ELBOWS

Size ..... inches	3x4	4x5	4x6	5x6
Dimension A ..... inches	9½	11⅜	12⅜	13⅜
" B	4 5/16	5 5/16	5 7/16	6¼
Price, Black ..... each	5.50	8.25	15.00	15.00
" Galvanized ..... "	9.65	14.50	26.25	26.25

90° and three-way elbows tapped, pitched ¼ inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

90° ELBOW WITH SIDE OUTLET

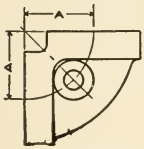


Plate E12271

90° ELBOW WITH HEEL OUTLET

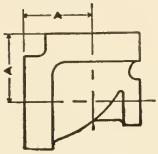


Plate E12272

90° LONG TURN ELBOW WITH CLEANOUT

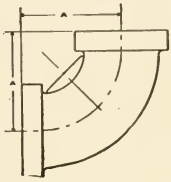


Plate E12273

90° ELBOWS WITH SIDE OR HEEL OUTLET

Size ..... inches	4
Dimension A ..... inches	4⅛
Size of Outlet ..... "	2
Price, Black ..... each	3.85
" Galvanized ..... "	6.75

90° LONG TURN ELBOWS WITH CLEANOUT

Size ..... inches	2	3	4	5	6
Dimension A ..... inches	3⅞	5¼	6⅛	7¼	8¼
Price, Black ..... each	1.20	3.00	5.00	7.50	10.00
" Galvanized ..... "	2.10	5.25	8.75	13.00	17.50

90° BASE ELBOW WITH CLEANOUT

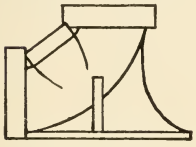


Plate E12274

90° BASE ELBOW WITH CLEANOUT, FOR CAST AND WROUGHT PIPE

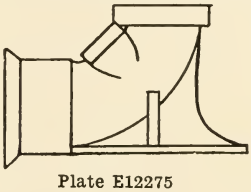


Plate E12275

45° ELBOW WITH BASE

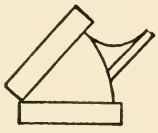


Plate E12276

90° BASE ELBOWS WITH CLEANOUT

Size ..... inches	2	3	4	5	6
Price, Black ..... each	3.00	4.50	7.00	12.00	18.00
" Galvanized ..... "	5.25	8.00	12.25	21.00	31.50

Dimensions same as 90° long turn elbows.

90° BASE ELBOWS WITH CLEANOUT—For Connecting Cast to Wrought Pipe

Size ..... inches	2	3	4	4x3	5	5x4	6	6x4	6x5	8	8x6	10
Price, Black.. each	3.30	5.00	8.00	8.75	15.00	16.50	25.00	27.50	27.50	40.00	44.00	66.00
" Galv... "	5.75	8.75	14.00	15.25	26.25	28.75	43.75	48.00	48.00	70.00	77.00	112.00

45° ELBOWS WITH BASE

Size ..... inches	2	3	4	5	6
Price, Black ..... each	1.00	1.75	2.75	4.50	6.75
" Galvanized ..... "	1.75	3.10	4.80	7.75	11.75

Dimensions same as 45° elbows.

90° elbows tapped pitched ¼ inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

CLOSET ELBOW

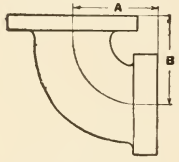


Plate E12281

REDUCING CLOSET ELBOW

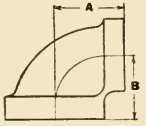


Plate E12282

CLOSET ELBOWS, ONE END FLANGED

Size	inches	4
Dimension A	"	4 1/8
" B	"	5
Price, Black	each	4.25
" Galvanized	"	7.40

REDUCING CLOSET ELBOWS

Size	inches	4x5
Dimension A	"	4 7/16
" B	"	3 13/16
Price, Black	each	4.25
" Galvanized	"	7.40

TEE

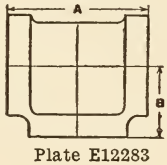


Plate E12283

REDUCING TEE

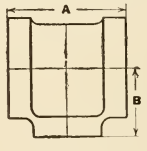


Plate E12284

TEES

Size inches	1 1/4	1 1/2	2	2 1/2	3	4	5	6	7	8	10
Dimension A "	3 3/4	4 1/2	5 1/4	6	6 7/8	8 1/4	9 3/8	10 3/4	11 3/4	13 3/4	16
" B "	1 7/8	2 1/4	2 5/8	3	3 7/16	4 1/8	4 11/16	5 3/8	5 7/8	6 7/8	8
Price, Black each	.45	.55	.80	1.50	2.00	3.25	6.00	8.75	16.00	21.00	43.00
" Galvanized "	.80	1.00	1.40	2.50	3.50	5.70	10.50	15.25	28.00	37.00	75.00

REDUCING TEES

Size inches	2x1 1/4	2x1 1/2	2 1/2 x1 1/2	2 1/2 x2	3x1 1/2	3x2	4x2
Dimension A "	4 11/16	4 11/16	5 1/4	5 3/8	5 7/16	5 1/2	5 3/4
" B "	2 1/2	2 9/16	2 5/8	2 11/16	3 1/4	3 5/16	3 7/8
Price, Black each	.90	.90	1.65	1.65	2.20	2.20	3.60
" Galvanized "	1.60	1.60	2.75	2.75	3.85	3.85	6.30

Size inches	4x3	5x2	5x3	5x4	6x2	6x3	6x4
Dimension A "	7 1/16	5 7/8	7 3/16	8 5/16	6	7 5/16	8 7/16
" B "	4	4 3/8	4 1/2	4 5/8	5	5 1/8	5 1/4
Price, Black each	3.60	6.60	6.60	6.60	9.60	9.60	9.60
" Galvanized "	6.30	11.55	11.55	11.55	16.75	16.75	16.75

Size inches	6x5	7x4	8x4	8x6	10x6	.....	.....
Dimension A "	9 1/2	8 3/4	8 7/8	11 1/4	11 5/8	.....	.....
" B "	5 5/16	6 1/16	6 1/2	6 3/4	7 7/8	.....	.....
Price, Black each	9.60	17.60	23.00	23.00	47.30	.....	.....
" Galvanized "	16.75	30.80	40.70	40.70	82.50	.....	.....

Tees are tapped, pitched 1/4-inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

BASIN TEE

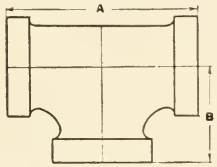


Plate E12291

BASIN CROSS

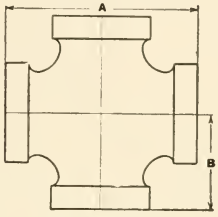


Plate E12292

BASIN TEES

Size.....inches	1¼	1½x1¼	1½	2	2x1¼	2x1½	2½	3
Dimension A..... "	5¼	6½	6½	7¾	6⅞	6⅞	9	10½
" B..... "	2⅝	3¼	3¼	3⅞	3 9/16	3 9/16	4½	5¼
Price, Black.....each	.60	.77	.70	1.10	1.20	1.20	1.75	2.50
" Galvanized..... "	1.00	1.35	1.22	1.95	2.10	2.10	3.00	4.25

BASIN CROSSES

Size.....inches	1¼	1½	2	2x1½
Dimension A..... "	5¼	6½	7¾	6⅞
" B..... "	2⅝	3¼	3⅞	3 9/16
Price, Black.....each	1.25	1.50	1.75	1.95
" Galvanized..... "	2.25	2.50	3.10	3.40

LONG TURN CLOSET TEES

INLET ON BOTH SIDES

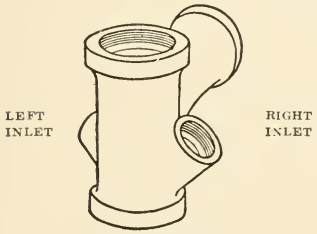


Plate E12293

INLET ON BOTH SIDES AND TOP

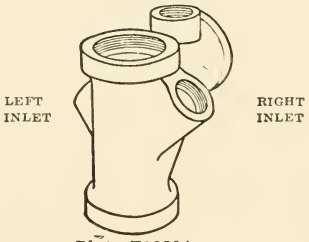


Plate E12294

Size.....inches	3	4	5x4	6x4
Price, with 2-in Inlet on Right or Left Side only, Black...each	5.25	9.00	12.00	23.00
" " 2 " " " " " " " " Galv... "	9.20	15.75	21.00	40.00
" " 2 " " " Both Sides, Black..... "	5.75	10.00	13.00	25.00
" " 2 " " " " " Galvanized..... "	10.00	17.50	22.75	44.00
" " 2-in. Inlet on Right or Left Side and 2-in. Top Inlet, Black.. "	5.75	10.00	13.00	25.00
" " 2 " " " " " " " 2 " " " Galv.... "	10.00	17.50	22.75	44.00
" " 2 " " " Both Sides " " 2 " " " Black.. "	6.50	11.00	14.50	28.00
" " 2 " " " " " " " 2 " " " Galv... "	11.35	19.25	25.50	49.00

Dimensions same as 90° long turn Y branches.
All above tapped, pitched ¼-inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

45° Y BRANCH

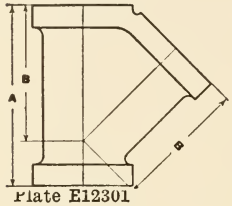


Plate E12301

REDUCING 45° Y BRANCH

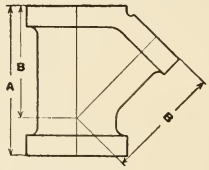


Plate E12302

45° Y BRANCHES

Size.....inches	1¼	1½	2	2½	3	4
Dimension A..... "	4½	6¼	7⅜	8½	9 9/16	11⅜
" B..... "	3 3/16	4⅛	4 15/16	5¾	6⅝	8⅛
Price, Black.....each	.52	.65	.95	2.10	2.65	3.85
" Galvanized..... "	.90	1.15	1.65	3.70	4.65	6.75

Size.....inches	5	6	7	8	10	.....
Dimensions A..... "	13 3/16	14 9/16	15⅝	17¾	20¾	.....
" B..... "	9 7/16	10 9/16	11½	13 3/16	15¾	.....
Price, Black.....each	7.10	10.50	19.00	25.00	52.00	.....
" Galvanized..... "	12.50	18.50	33.25	44.00	91.00	.....

REDUCING 45° Y BRANCHES

Size.....inches	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½	2½x2	3x1¼
Dimension A.. "	6	6 3/16	6 9/16	5 7/16	5¾	6¼	7
" B.. "	4	4½	4 9/16	4¼	4¼	4½	5⅜
Price, Black.....each	.72	1.05	1.05	2.30	2.30	2.30	2.90
" Galvanized "	1.25	1.85	1.85	4.00	4.00	4.00	5.10

Size.....inches	3x1½	3x2	3x2½	4x1¼	4x1½	4x2	4x2½
Dimension A.. "	7 3/16	8	8⅜	8¼	8	8¼	9⅞
" B.. "	5½	5⅞	6⅛	6⅝	6½	6⅝	7½
Price, Black.....each	2.90	2.90	2.90	4.25	4.25	4.25	4.25
" Galvanized "	5.10	5.10	5.10	7.40	7.40	7.40	7.40

Size.....inches	4x3	5x2	5x3	5x4	6x2	6x2½	6x3
Dimension A.. "	9 15/16	8½	10 1/16	11 1/16	8¾	8¾	10⅜
" B.. "	7 7/16	7⅜	8 3/16	8 7/8	8¼	8¼	9 1/16
Price, Black.....each	4.25	7.80	7.80	7.80	11.50	11.50	11.50
" Galvanized "	7.40	13.65	13.65	13.65	20.00	20.00	20.00

Size.....inches	6x4	6x5	7x3	7x4	7x5	7x6	8x3
Dimension A.. "	11 1/16	13½	11¼	11⅝	11⅞	12½	11
" B.. "	9¾	10⅜	10	10 1/16	10½	11¾	10¼
Price, Black.....each	11.50	11.50	21.00	21.00	21.00	21.00	27.50
" Galvanized "	20.00	20.00	37.00	37.00	37.00	37.00	48.00

Size.....inches	8x4	8x5	8x6	10x4	10x5	10x6	10x8
Dimension A.. "	12	13½	14½	13	15¼	15¼	18⅛
" B.. "	10 1/16	11 3/16	11⅞	12⅜	13 7/16	13 7/16	14⅜
Price, Black.....each	27.50	27.50	27.50	57.00	57.00	57.00	57.00
" Galvanized "	48.00	48.00	48.00	97.00	97.00	97.00	97.00

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

45° DOUBLE Y BRANCH

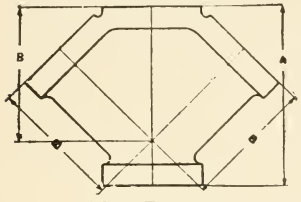


Plate E12311

REDUCING 45° DOUBLE Y BRANCH

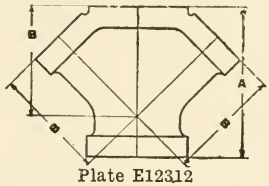


Plate E12312

45° DOUBLE Y BRANCHES

Size.....inches	1¼	1½	2	2½	3	4	5	6	7	8	10
Dimension A...inches	4½	6¼	7 3/8	8½	9 9/16	11 3/8	13 3/16	14 9/16	15 5/8	17¾	20¾
" B... "	3 3/16	4 1/8	4 15/16	5 3/4	6 5/8	8 1/8	9 7/16	10 9/16	11½	13 3/16	15 3/4
Price, Black.....each	.90	1.00	1.45	3.25	4.00	5.75	10.75	16.00	28.50	38.00	78.00
" Galvanized "	1.60	1.75	2.55	5.70	7.00	10.00	18.80	28.00	50.00	66.50	137.00

REDUCING 45° DOUBLE Y BRANCHES

Size....inches	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½	2½x2	3x1½	3x2	4x2	4x3	5x2	5x3	5x4	6x2
Dimen. A. inches	6	6 3/8	6 9/16	5 7/16	5 3/4	6 1/4	7 3/16	8	8 1/4	9 5/16	8½	10 1/16	11 11/16	8¾
" B. "	4	4½	4 9/16	4¼	4¼	4½	5½	5 7/8	6 5/8	7 7/16	7 3/8	8 3/16	8 7/8	8¼
Price, Black, ea.	1.10	1.60	1.60	3.60	3.60	3.60	4.40	4.40	6.35	6.35	11.75	11.75	11.75	17.50
" Galv. "	1.90	2.80	2.80	6.30	6.30	6.30	7.70	7.70	11.00	11.00	20.50	20.50	20.50	30.50

Size....inches	6x3	6x4	6x5	7x3	7x4	7x5	7x6	8x3	8x4	8x5	8x6	10x4	10x6	10x8
Dimen. A. inches	10 3/8	11 15/16	13½	11 5/8	11 5/8	12 7/16	14 3/4	11	12	13½	14½	13	15¼	18½
" B. "	9 1/16	9¾	10 3/8	10 1/16	10 1/16	10 7/16	11¾	10¼	10 11/16	11 3/16	11 7/8	12 3/8	13 7/16	14 3/8
Price, Black, ea.	17.50	17.50	17.50	31.50	31.50	31.50	31.50	42.00	42.00	42.00	42.00	86.00	86.00	86.00
" Galv. "	30.50	30.50	30.50	54.00	54.00	54.00	54.00	72.00	72.00	72.00	72.00	146.00	146.00	146.00

60° Y BRANCH

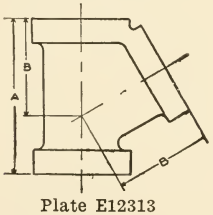


Plate E12313

REDUCING 60° Y BRANCH

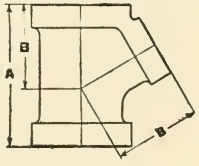


Plate E12314

60° Y BRANCHES

Size.....inches	1¼	1½	2	2½	3	4	5	6	8
Dimension A.....inches	4 5/8	5	5 5/8	6½	7¼	8¾	10½	11¾	14¾
" B..... "	2 11/16	2 15/16	3 5/16	4	4½	5½	6 5/8	7 5/8	9 7/8
Price, Black.....each	.52	.65	.95	2.10	2.65	3.85	7.10	10.50	25.00
" Galvanized... "	.90	1.15	1.65	3.70	4.65	6.75	12.50	18.50	44.00

REDUCING 60° Y BRANCHES

Size.....inches	2x1½	2½x2	3x2	4x2	4x3	5x2	5x3	5x4	6x2	6x4	6x5	8x4	8x6
Dimen. A, inches	5 1/8	6	6 3/8	6 3/4	7 3/4	7 1/4	8 1/4	9	7 3/4	9 3/4	10 1/4	10 3/4	12½
" B, "	3 1/8	3 9/16	4	4 3/8	5 1/8	5 1/4	5 3/4	6	5 3/4	6 3/4	6 7/8	7 7/8	8 9/16
Price, Black each	1.05	2.30	2.90	4.25	4.25	7.80	7.80	7.80	11.50	11.50	11.50	27.50	27.50
" Galvd. "	1.85	4.00	5.10	7.40	7.40	13.65	13.65	13.65	20.00	20.00	20.00	48.00	48.00

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

90° Y BRANCH, TEE PATTERN

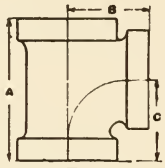


Plate E12321

REDUCING 90° Y BRANCH, TEE PATTERN

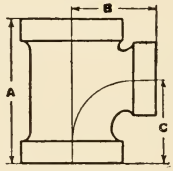


Plate E12322

90° Y BRANCHES, TEE PATTERN

Size.....inches	1	1¼	1½	2	2½	3
Dimension A..... "	3¼	3¾	4¼	5⅜	6⅞	7⅞
" B..... "	2	2¼	2½	3⅛	4	5¼
" C..... "	2	2¼	2½	3⅛	4	5¼
Price, Black.....each	.40	.45	.57	.85	1.80	2.20
" Galvanized..... "	.70	.80	1.00	1.50	3.15	3.85

Size.....inches	4	5	6	7	8	10
Dimension A..... "	9⅜	11¼	12⅞	13¾	15½	19¼
" B..... "	6⅛	7¼	8¼	8¼	9¼	12¼
" C..... "	6⅛	7¼	8¼	8¼	9¼	12¼
Price, Black.....each	3.50	6.50	9.50	17.50	23.00	47.00
" Galvanized..... "	6.15	11.35	16.50	30.50	40.00	82.00

REDUCING 90° Y BRANCHES, TEE PATTERN

Size.....inches	1¼x1	1½x1	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½	2½x2	3x1¼
Dimens. A.... "	3¾	4⅜	4⅜	5⅝	5⅝	6¼	6¼	6⅞	6⅞
" B.... "	2¼	2¾	2¾	3¾	3¾	3¾	4	4¼	4¼
" C.... "	2¼	2¾	2¾	3¾	3⅞	4	4¼	4½	4¼
Price, Black....each	.50	.63	.63	.95	.95	2.00	2.00	2.00	2.40
" Galv..... "	.90	1.10	1.10	1.65	1.65	3.50	3.50	3.50	4.20

Size.....inches	3x1½	3x2	4x1¼	4x1½	4x2	4x2½	4x3	5x1½	5x2
Dimens. A.... "	6⅝	7⅞	7⅝	7½	7⅞	8	8⅝	7¾	7⅝
" B.... "	4⅜	4½	5¼	5	5⅛	5¼	5¼	5½	5⅞
" C.... "	4⅞	5	5¼	5¼	5⅜	5⅝	5¾	5¼	5½
Price, Black....each	2.40	2.40	3.85	3.85	3.85	3.85	3.85	7.15	7.15
" Galv..... "	4.20	4.20	6.75	6.75	6.75	6.75	6.75	12.50	12.50

Size.....inches	5x2½	5x3	5x4	6x1½	6x2	6x3	6x4	6x5	7x4
Dimens. A.... "	8¼	9⅜	10⅝	8⅞	8⅞	9⅞	10½	12¼	10¼
" B.... "	6	5⅞	6⅛	6⅞	6⅜	6⅝	6¾	7⅞	7⅜
" C .... "	6¼	6	6¾	6⅞	5¾	6¼	6¾	8	6¼
Price, Black....each	7.15	7.15	7.15	10.50	10.50	10.50	10.50	10.50	19.00
" Galv..... "	12.50	12.50	12.50	18.50	18.50	18.50	18.50	18.50	33.25

Size.....inches	8x2	8x3	8x4	8x5	8x6	10x3	10x4	10x6	.....
Dimens. A.... "	10	10	11½	15½	15½	10½	10⅞	13⅜	.....
" B.... "	7⅜	7¼	7½	9⅝	9⅝	8½	8¾	9¾	.....
" C.... "	7⅜	6½	7½	9⅝	9⅝	6½	6¾	8¼	.....
Price, Black....each	25.50	25.50	25.50	25.50	25.50	52.00	52.00	52.00	.....
" Galv..... "	44.50	44.50	44.50	44.50	44.50	88.00	88.00	88.00	.....

Above are tapped, pitched ¼ inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

90° DOUBLE Y BRANCH TEE PATTERN

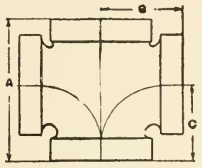


Plate E12331

REDUCING 90° DOUBLE Y BRANCH TEE PATTERN

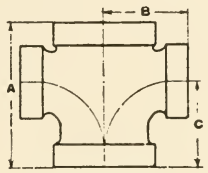


Plate E12332

90° DOUBLE Y BRANCHES, TEE PATTERN

Size.....inches	1	1¼	1½	2	2½	3
Dimension A..... "	3¼	4¼	5 3/16	6 1/16	7⅛	7 7/8
" B..... "	2	2½	3 7/16	3 7/8	4 11/16	5¼
" C..... "	2	2½	3 7/16	3 7/8	4 11/16	5¼
Price, Black.....each	.60	.70	.85	1.30	2.85	3.40
" Galvanized..... "	1.05	1.22	1.50	2.30	5.00	5.95
Size.....inches	4	5	6	7	8	10
Dimension A..... "	9 3/8	11¼	12 7/8	13¾	15½	19¼
" B..... "	6⅛	7¼	8¼	8 3/16	9¼	12¼
" C..... "	6⅛	7¼	8¼	8 3/16	9¼	12¼
Price, Black.....each	5.25	9.50	14.00	25.00	36.00	60.00
" Galvanized..... "	9.20	16.50	24.50	42.50	62.00	102.00

REDUCING 90° DOUBLE Y BRANCHES, TEE PATTERN

Size.....inches	1¼x1	1½x1¼	2x1¼	2x1½	2½x1½	2½x2
Dimension A..... "	4⅛	5¼	5⅝	6 5/16	7⅛	7⅛
" B..... "	2½	3 3/8	3 3/4	3 3/4	4 11/16	4 11/16
" C..... "	2½	3 3/8	3 3/4	3⅞	4 11/16	4 11/16
Price, Black.....each	.77	.95	1.50	1.50	3.15	3.15
" Galvanized..... "	1.35	1.65	2.60	2.60	5.50	5.50
Size.....inches	3x1½	3x2	4x2	4x3	5x2	5x3
Dimension A..... "	6 5/16	7 7/16	7 11/16	8 9/16	7 15/16	9 3/16
" B..... "	4 3/8	4½	5⅛	5¼	5 11/16	5⅞
" C..... "	4⅞	5	5 3/8	5 3/4	5½	6
Price, Black.....each	3.75	3.75	5.75	5.75	10.50	10.50
" Galvanized..... "	6.55	6.55	10.00	10.00	18.50	18.50
Size.....inches	5x4	6x2	6x3	6x4	6x5	7x4
Dimension A..... "	10 5/16	8 7/16	9 11/16	10½	12¼	10¼
" B..... "	6⅛	6 3/8	6 9/16	6 3/4	7 7/16	7 3/8
" C..... "	6 3/4	5 3/4	6¼	6 3/4	8	6¼
Price, Black.....each	10.50	15.50	15.50	15.50	15.50	27.50
" Galvanized..... "	18.50	27.00	27.00	27.00	27.00	46.75
Size.....inches	8x3	8x4	8x6	10x4	10x6	.....
Dimension A..... "	10	11½	15½	10 7/8	13 3/8	.....
" B..... "	7¼	7½	9 5/16	8 3/4	9 3/4	.....
" C..... "	6½	7½	9 5/16	6 3/4	8¼	.....
Price, Black.....each	40.00	40.00	40.00	66.00	66.00	.....
" Galvanized..... "	68.00	68.00	68.00	112.00	112.00	.....

Above are tapped, pitched ¼ inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

90° Y BRANCH
LONG TURN, TEE PATTERN

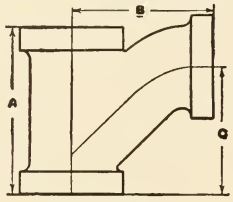


Plate E12341

REDUCING 90° Y BRANCH
LONG TURN, TEE PATTERN

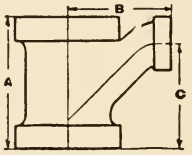


Plate E12342

90° Y BRANCHES, LONG TURN, TEE PATTERN

Size ..... inches	1¼	1½	2	2½	3
Dimension A ..... "	4¾	5¼	6⅝	7¾	8
" B ..... "	3½	3¾	5⅛	6	6⅞
" C ..... "	3½	3¾	5⅝	6	6⅝
Price, Black ..... each	.57	.70	1.10	2.40	3.35
" Galvanized ..... "	1.00	1.22	1.95	4.20	5.85
Size ..... inches	4	5	6	7	8
Dimension A ..... "	10⅛	11¼	13⅜	14½	17
" B ..... "	8⅝	9⅛	10⅜	10¼	12
" C ..... "	8¼	8¾	10⅛	10¼	12
Price, Black ..... each	6.00	9.50	20.00	30.00	40.00
" Galvanized ..... "	10.50	16.50	35.00	52.50	70.00

REDUCING 90° Y BRANCHES, LONG TURN, TEE PATTERN

Size ..... inches	1¼x1	1½x1	1½x1¼	2x1¼	2x1½	2½x1	2½x1¼	2½x1½
Dimension A ..... "	4½	4⅝	4¾	5⅜	5½	7¼	7¼	7½
" B ..... "	3 11/16	3⅝	3⅝	4 7/16	4½	5¾	5 3/16	5½
" C ..... "	3 11/16	3⅝	3⅝	4 7/16	4½	5¾	5 3/16	5½
Price, Black ..... each	.63	.80	.80	1.20	1.20	2.65	2.65	2.65
" Galvanized ..... "	1.10	1.40	1.40	2.10	2.10	4.65	4.65	4.65
Size ..... inches	2½x2	3x1½	3x2	3x2½	4x1½	4x2	4x2½	4x3
Dimension A ..... "	7⅜	6	7¼	7 7/8	6 1/16	7¼	8⅝	8½
" B ..... "	5¾	5¼	5	6¾	5 7/16	6½	7 1/16	7½
" C ..... "	5¾	4¾	5½	6¾	4¾	5½	6⅝	6½
Price, Black ..... each	2.65	3.75	3.75	3.75	6.60	6.60	6.60	6.60
" Galvanized ..... "	4.65	6.55	6.55	6.55	11.55	11.55	11.55	11.55
Size ..... inches	5x1½	5x2	5x2½	5x3	5x4	6x2	6x3	6x4
Dimension A ..... "	6 5/16	7¾	8⅜	8⅜	9¾	7 15/16	9¾	10¾
" B ..... "	6	7⅛	7⅜	7⅜	8¾	7¾	9⅛	9½
" C ..... "	4 5/16	6⅛	7⅜	6½	7½	6 5/16	8 1/16	8⅛
Price, Black ..... each	10.50	10.50	10.50	10.50	10.50	22.00	22.00	22.00
" Galvanized ..... "	18.50	18.50	18.50	18.50	18.50	38.50	38.50	38.50
Size ..... inches	6x5	7x3	7x4	7x5	7x6	8x3	8x4	.....
Dimension A ..... "	11¾	10¼	13¼	13	13¾	10 5/8	13⅜	.....
" B ..... "	9⅝	10½	11¾	9¾	10½	10 7/8	12	.....
" C ..... "	8¾	8¼	10¼	9	10½	8 5/16	10 7/16	.....
Price, Black ..... each	22.00	33.00	33.00	33.00	33.00	44.00	44.00	.....
" Galvanized ..... "	38.50	58.00	58.00	58.00	58.00	77.00	77.00	.....

Above are tapped, pitched ¼ inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

90° DOUBLE Y BRANCH
LONG TURN, TEE PATTERN

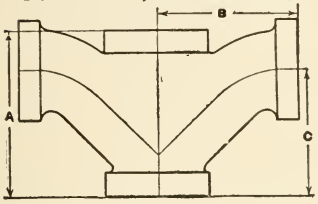


Plate E12351

REDUCING 90° DOUBLE Y BRANCH
LONG TURN, TEE PATTERN

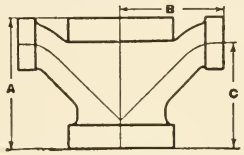


Plate E12352

90° DOUBLE Y BRANCHES, LONG TURN, TEE PATTERN

Size.....inches	1¼	1½	2	2½	3
Dimension A..... "	4¼	5¼	6⅝	7¾	8
" B..... "	2½	3¾	5⅛	6	6⅞
" C..... "	2½	3¾	5⅝	6	6⅝
Price, Black.....each	1.00	1.10	1.75	3.60	5.00
" Galvanized..... "	1.75	1.95	3.10	6.30	8.75

Size.....inches	4	5	6	7	8
Dimension A..... "	10⅛	11¼	13⅜	14½	17
" B..... "	8⅝	9⅛	10⅜	10¼	12
" C..... "	8¼	8¾	10⅛	10¼	12
Price, Black.....each	9.00	14.00	30.00	45.00	60.00
" Galvanized..... "	15.75	24.50	52.50	79.00	105.00

REDUCING 90° DOUBLE Y BRANCHES, LONG TURN, TEE PATTERN

Size.....inches	1¼x1	1½x1	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½
Dimension A.... "	4½	4⅝	4⅝	5⅜	5½	7¼	7¼
" B.... "	3 11/16	3⅝	3⅝	4 7/16	4½	5 3/16	5 3/16
" C.... "	3 11/16	3⅝	3⅝	4 7/16	4½	5 3/16	5 3/16
Price, Black.....each	1.10	1.25	1.25	1.90	1.90	4.00	4.00
" Galvanized.. "	1.90	2.25	2.25	3.35	3.35	7.00	7.00

Size.....inches	2½x2	3x1½	3x2	4x1½	4x2	4x2½	4x3
Dimension A.... "	7⅜	6	7¼	6 1/16	7¼	8⅝	8½
" B.... "	5¾	5¼	5	5 7/16	6½	7 1/16	7½
" C.... "	5¾	4¾	5½	4¾	5½	6⅝	6½
Price, Black.....each	4.00	5.50	5.50	10.00	10.00	10.00	10.00
" Galvanized.. "	7.00	9.65	9.65	17.50	17.50	17.50	17.50

Size.....inches	5x1½	5x2	5x3	5x4	6x2	6x3	6x4
Dimension A.... "	6 5/16	7¾	8⅜	9¾	7 15/16	9¾	10¾
" B.... "	6	7⅛	7⅜	8¾	7¾	9⅛	9½
" C.... "	4 15/16	6⅛	6½	7½	6 5/16	8⅛	8⅛
Price, Black..... each	15.50	15.50	15.50	15.50	33.00	33.00	33.00
" Galvanized.. "	27.00	27.00	27.00	27.00	58.00	58.00	58.00

Size.....inches	6x5	7x4	8x3	8x4	.....	.....	.....
Dimension A.... "	11¾	14½	10⅝	13⅜	.....	.....	.....
" B.... "	9⅝	10¼	10⅞	12	.....	.....	.....
" C.... "	8¾	10¼	8 5/16	10 7/16	.....	.....	.....
Price, Black.....each	33.00	50.00	66.00	66.00	.....	.....	.....
" Galvanized.. "	58.00	85.00	112.00	112.00	.....	.....	.....

Above are tapped, pitched ¼ inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

S TRAP

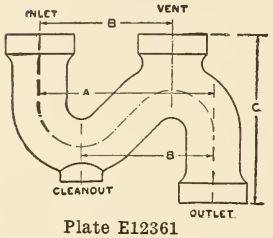


Plate E12361

THREE-QUARTER S TRAP

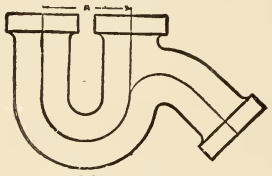


Plate E12362

Size.....inches	2	3	4	5	6	8
Dimension A } S .... "	8	11	13½	15½	17½	23⅞
" B } S .... "	6	8¼	10½	11⅝	13	18
" C } Traps .... "	8¾	11¼	13⅞	15¾	18	23¾
Size of Cleanout .... "	1	1¼	2	2	2	3
" " Vent .... "	2	3	4	4	4	6
Dimension A } ¾ S .... "	4	5⅜	7	8⅜	10⅛	....
Size of Vent } Traps .... "	2	3	4	4	4	....
Price, S or ¾ S Traps Black....each	4.00	9.25	14.00	21.00	36.00	60.00
" " " " " Galv..... "	7.00	16.00	24.00	37.00	63.00	105.00

HALF S TRAP

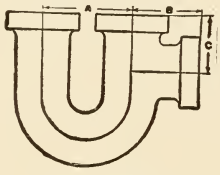


Plate E12363

RUNNING TRAP

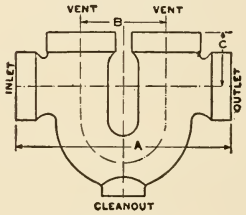


Plate E12364

HALF S TRAPS

Size.....inches	1¼	1½	2	3	4	5	6	8	10
Dimension A..... "	3 7/16	3 7/16	4	5⅜	7	8⅜	10⅛	12⅜	18
" B..... "	2⅝	2⅝	3 1/16	4 3/16	5 1/16	6 1/16	6 9/16	8 5/16	8 11/16
" C..... "	2½	2½	2 9/16	3½	4 3/16	4¾	5 7/16	6¾	9⅜
Size of Vent..... "	1½	1½	2	3	4	4	4	4	4
Price, Black.....each	1.55	1.70	2.20	5.00	10.00	21.50	32.50	55.00	100.00
" Galv..... "	2.70	3.00	3.85	8.75	17.50	37.50	57.00	95.00	175.00

RUNNING TRAPS

Size.....inches	1¼	1½	2	3	4	5	6	8	10
Dimension A..... "	8¾	8¾	10⅛	13¾	17¼	20½	23¼	30¼	35⅜
" B..... "	3 7/16	3 7/16	4	5⅜	7	8⅜	10⅛	12⅜	18
" C..... "	2½	2½	2 9/16	3½	4 3/16	4¾	5 7/16	6¾	9⅜
Size of Vent..... "	1½	1½	2	3	4	4	4	4	4
Price, Black.....each	2.40	2.70	3.30	5.50	9.75	24.50	33.50	65.00	115.00
" Galv..... "	4.20	4.70	5.75	9.50	17.00	43.00	58.50	115.00	200.00

Half S and running traps, tapped, pitched ¼ inch to the foot.

CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Iron Pipe

INCREASER

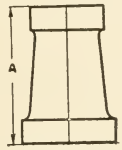


Plate E12371

CAPPING FOR AIR INLET

Plate E12372

INCREASERS

Size ..... inches	1½x1¼	2x1½	2½x2	3x2	4x2	4x3	5x2	5x3
Dimension A ..... inches	9	9	9	9	9	9	9	9
Price, Black ..... each	1.50	1.75	2.00	2.50	3.75	3.75	5.50	5.50
" Galvanized ..... "	2.60	3.00	3.50	4.40	6.55	6.55	9.65	9.65

Size ..... inches	5x4	6x3	6x4	6x5	7x5	7x6	8x6	8x7
Dimension A ..... inches	9	9	9	9	9	9	9	9
Price, Black ..... each	5.50	6.50	6.50	6.50	12.00	12.00	15.00	15.00
" Galvanized ..... "	9.65	11.35	11.35	11.35	20.00	20.00	26.25	26.25

CAPPINGS FOR AIR INLET PIPES

Size ..... inches	2	3	4	5
Price, Black ..... each	2.50	3.50	8.00	10.00
" Galvanized ..... "	4.25	6.00	14.00	17.50

TUCKER CONNECTION ROOF CONNECTION TRAP SCREW FERRULE BRASS SOLDER NIPPLE

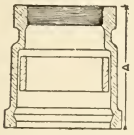


Plate E12373

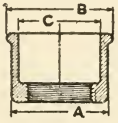


Plate E12374

Plate E12375

Plate E12376

Size ..... inches	2	3	4	5	6	7
Price, Tucker Connections, Black ..... each	.80	2.00	3.25	6.00	8.75	.....
" " " Galvanized .. "	1.40	3.50	5.70	10.50	15.25	.....
" Roof " Black ..... "	1.15	1.20	1.50	2.00	4.25	6.25
" " " Galvanized .. "	2.00	2.10	2.60	3.50	7.40	11.00
" Trap Screw Ferrules, Black ..... "	1.00	2.00	3.00	5.00	7.00	.....
" " " " Galvanized.. "	1.75	3.50	5.25	8.75	12.25	.....

BRASS SOLDER NIPPLES

Size ..... inches	1	1¼	1½	2	3	4
Price ..... each	.80	.90	1.05	1.50	2.75	4.00

RECESSED IRON CLOSET FLANGE

IRON CLOSET FLANGE

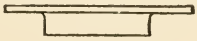


Plate E12377

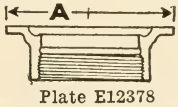


Plate E12378

BRASS CLOSET FLANGE

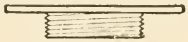
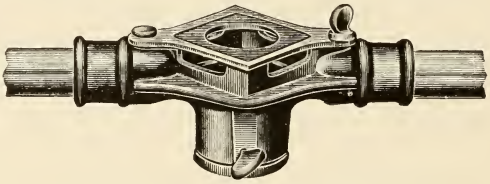


Plate E12379

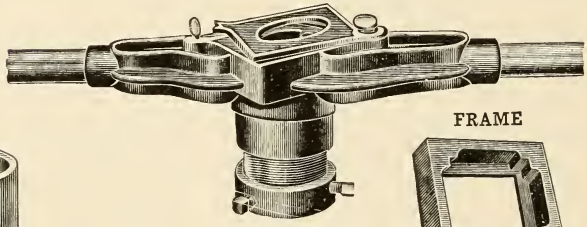
Size ..... inches	4
Price, Iron Closet Flanges, Plain or Recessed, 7 inches Diameter, Black .... each	1.35
" " " " " " " 7 " " Galvanized "	2.35
" " " " " 10 inches Diameter, Black ..... "	1.70
" " " " " 10 " " Galvanized ..... "	2.95
" Brass " " 7½ inches Diameter ..... "	7.00

PIPE STOCKS AND DIES

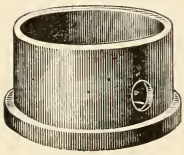
MALLEABLE STOCKS AND DIES



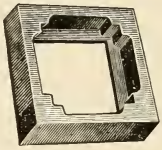
WITH LEADER SCREW



BUSHING



FRAME



DIE

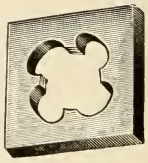


Plate E12381

No.	Threads Pipe Inches	Dimensions of Dies Inches	Price, Each				
			Complete	Stocks only	Extra Dies	Extra Bushings	Extra Die Frames
0	⅛ to ½	2 x ½	9.50	3.50	1.50	.25	....
1	¼ " 1	2½x ¾	15.00	5.00	2.00	.35	.30
1½	¾ " 1¼	3 x ¾	13.50	6.00	2.50	.45	.40
1¾	1 " 1½	3 x ¾	13.50	6.00	2.50	.45	.40
2	1¼ " 2	4 x ⅞	20.00	9.50	3.50	.60	.50
3	2½ " 3	5 x1¼	43.00	25.00	9.00	1.00	.60
4	2½ " 3	5 x1¼	51.00	33.00	9.00	1.00	.60

Nos. 2, 3, 4 have leader screw attachment. No. 4 has four arms.

MILLER'S REVERSIBLE RATCHET STOCKS

Plate E12382

Size	Threads Pipe Inches	Dimensions of Dies Inches	Price, Each				
			Complete	Stocks only	Extra Dies	Extra Bushings	Extra Die Frames
B	¼ to 1	2½x ¾	15.00	7.50	1.50	.25	.22
C	1 " 1½	3 x ¾	18.50	13.00	1.80	.35	.30
D	1¼ " 2	4 x ⅞	20.00	12.50	2.50	.45	.38
E	2½ and 3	5 x1¼	44.50	29.00	7.75	.85	.45

Sizes C, D and E have leader screws.

ARMSTRONG
ADJUSTABLE PIPE STOCKS AND DIES

Nos. 1, 2 AND 3

Plate E12391

No. 2½

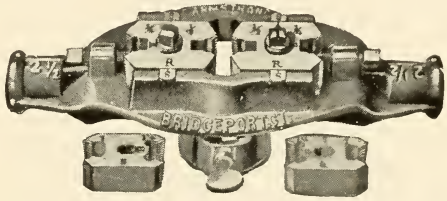


Plate E12392

No. 1

No.	Threads Pipe Inches	Price, Complete Each		Number of Sets of Dies Right-hand	Number of Sets of Dies Right and Left-hand	Price Extra Dies Right or Left-hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right-hand	Right and Left-hand					
1	⅛ to ½	9.00	14.00	4	8	1.25	.20	3.25

Unless otherwise specified, this set is furnished ⅛ to ½-inch, right-hand.

No. 2

No.	Threads Pipe Inches	Price, Complete Each		Number of Sets of Dies Right-hand	Number of Sets of Dies Right and Left-hand	Price Extra Dies Right or Left-hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right-hand	Right and Left-hand					
2	¼ to 1	12.00	20.00	5	10	1.50	.25	4.00
2	⅛ " 1	14.00	23.00	6	12	1.50	.25	4.00

Unless otherwise specified, this set is furnished ¼ to 1-inch, right-hand.

No. 2½

No.	Threads Pipe Inches	Price, Complete Each		Number of Sets of Dies Right-hand	Number of Sets of Dies Right and Left-hand	Price Extra Dies Right or Left-hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right-hand	Right and Left-hand					
2½	½ to 1¼	12.00	18.00	*2	4	3.25	.40	4.50
2½	¼ " 1¼	18.00	23.00	†4	8	**3.25	.40	4.50

*Two sets double-end dies, ½x¾ and 1x1¼-inch. †Two sets double-end dies, ½x¾ and 1x1¼-inch, and two sets single-end dies, ¼ and ⅜-inch. **Is list of double-end dies. Sizes, ¼ or ⅜-inch, single-end, 2.50 per set.

Unless otherwise ordered, this set is furnished ½ to 1¼-inch, right-hand.

No. 3

No.	Threads Pipe Inches	Price, Complete Each		Number of Sets of Dies Right-hand	Number of Sets of Dies Right and Left-hand	Price Extra Dies Right or Left-hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right-hand	Right and Left-hand					
3	1¼ to 2	20.00	32.00	3	6	4.00	.50	7.00
3	1 " 2	24.00	40.00	4	8	4.00	.50	7.00
3	¾ " 2	28.50	48.50	5	10	4.00	.50	7.00
3	½ " 2	33.00	57.00	6	12	4.00	.50	7.00

Unless otherwise ordered, this set is furnished 1 to 2-inch, right-hand.

ARMSTRONG
ADJUSTABLE PIPE STOCKS AND DIES

No. 6

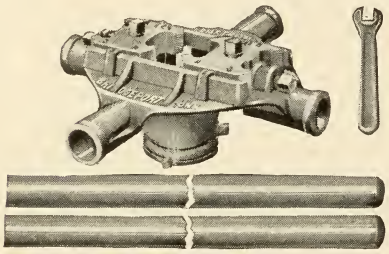


Plate E12401

No. 7

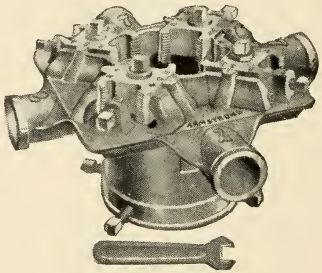


Plate E12402

No. 6

No.	Threads Pipe Inches	Price, Complete Each		Number of Sets of Dies Right-hand	Number of Sets of Dies Right and Left-hand	Price Extra Dies Right or Left-hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right-hand	Right and Left-hand					
6	2½ and 3	40.00	55.00	*1	2	15.00	1.00	25.00

*Double-end. The change from 2½ to 3-inch is made by simply reversing the dies end for end.

Unless otherwise ordered, this set is furnished 2½ and 3-inch, right-hand.

No. 7

No.	Threads Pipe Inches	Price, Complete Each		Number of Sets of Dies Right-hand	Number of Sets of Dies Right and Left-hand	Price Extra Dies Right or Left-hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right-hand	Right and Left-hand					
7	2½ to 4	60.00	92.00	*2	4	16.00	1.50	30.00
7	2½ and 3	45.00	60.00	1	2	16.00	1.50	30.00
7	3½ " 4	45.00	60.00	1	2	16.00	1.50	30.00

*These dies are double-end and come in sets of four pieces. One set is threaded for 2½-inch on one end and 3-inch on the opposite end, and one set is threaded for 3½-inch on one end and 4-inch on the other end.

Sent 2½ to 4-inch, right-hand, unless otherwise ordered.

RATCHET ATTACHMENT

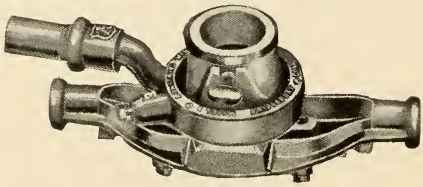


Plate E12403

Can be used either right or left by reversing pawl without removing from stock. With this attachment any Armstrong Stock becomes a ratchet stock and die.

For Stock.....No.	2	2½	3	6	7
Price.....each	2.50	3.00	3.50	5.00	5.00

STOCKS AND DIES

T-R-I-O DIE STOCKS

TOP VIEW

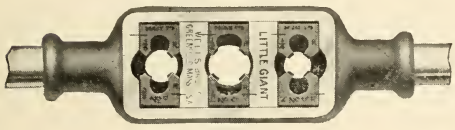


Plate E12411

SIDE VIEW

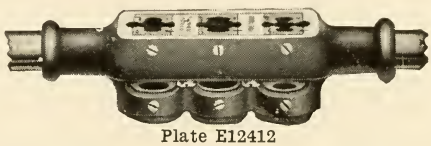


Plate E12412

Each stock contains three Little Giant Pipe Dies, always ready for instant use. There is nothing to adjust, nothing to break and nothing to lose.

They are of strong, rugged construction, and an ideal tool for plumbers and gas fitters.

Number	Size of Dies in Each Stock Inches	Net Weight Pounds	Price per Set	Number	Size of Dies in Each Stock Inches	Net Weight Pounds	Price per Set
200A	⅛, ¼, ⅜	4½	8.50	210A	⅜, ½, ¾	10	11.00
200B	¼, ⅜, ½	4½	8.50	210B	½, ¾, 1	10	11.00

PARTS

Number	200A	200B	210A	210B
Price, Stocks.....each	4.00	4.00	5.50	5.50
" Dies..... "	1.50	1.50	2.00	2.00
" Guides..... "	.20	.20	.30	.30
" Wedges..... "	.30	.30	.50	.50

When stocks are ordered separately, wedges and guides will always be sent unless otherwise specified.

Right-hand threads sent unless otherwise specified.

NYE SKIP-TOOTH DIES

IMPROVED SOLID DIE

Plate E12413

ADJUSTBALE DIE

Plate E12414

NYE IMPROVED SOLID DIES

Cutting Size.....inches	⅛	¼–⅜	½	¾	1	1¼	1½	2	2½	3
Price, 2 x½, for No. 0 Stock each	2.00	2.50	3.00	....	....	....	....	....	.....	.....
" 2½x¾ " " 1 " "	2.00	2.50	3.00	3.00	3.50	....	....	....	.....	.....
" 3 x¾ " Nos. 1½ and 1¾ Stocks "	2.50	3.00	3.50	3.50	4.00	4.00	4.50	....	.....	.....
" 4 x⅞ " No. 2 Stock "	....	....	4.00	4.00	4.50	4.50	5.00	5.00	.....	.....
" 5 x1¼ " Nos. 3 and 4 Stocks "	....	....	....	....	....	....	....	....	13.00	14.00

NYE ADJUSTABLE DIES

For Armstrong or Armstrong Pattern Stocks

Cutting Size.....inches	⅛ to ½	⅛ to 1	½ to 1¼	*½x1¾	*1x1¼	½ to 2	*2½x3	*3½x4
For Stock.....number	1	2	2½	2½	2½	3	6	7
Price.....each	3.50	3.50	5.00	5.00	5.00	5.00	25.00	35.00

*Double end.

TOLEDO
ADJUSTABLE PIPE THREADING DEVICES

No. 0

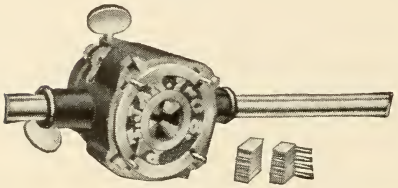


Plate E12421

No. 1

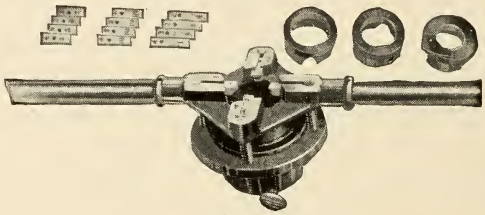


Plate E12422

No. 0 cuts ½ and ¾-inch threads with one set of dies; ¼ and ⅜-inch threads with another set, and ⅛-inch threads with another set. It differs from other tools of the same capacity in that it uses the receding-die principle for threading ½ and ¾-inch pipe, thus making it an easy operating tool.

No. 1 threads 1, 1¼, 1½ and 2-inch pipe. It is made both as a right-hand and a left-hand tool—neither will do both. Right-hand furnished unless otherwise specified.

WITH RATCHET

No. 1A

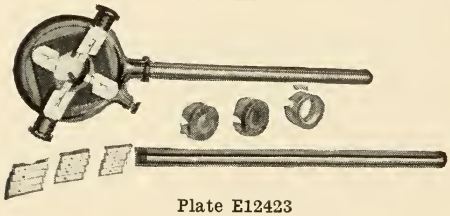


Plate E12423

No. 1A is in every essential like the No. 1, except that it is equipped with a ratchet. It may be used with two handles as an ordinary die stock, or with one handle inserted in the ratchet case. It is made both as a right-hand and a left-hand tool—neither will do both. Right-hand furnished unless otherwise specified.

No. 1½R is offered for those who do not require to thread pipe larger than 3-inch. Its capacity is limited to two sizes of standard pipe, viz., 2½ and 3-inch of 8 thread. It is direct-acting and, therefore, does not operate as easily as the No. 2 tool, which is geared. Can also be furnished with a capacity of 2, 2½ and 3-inch threads, of 11½-thread for drive well pipe, when so ordered, at same price.

Number	0	1	1A	1½R
Threads Pipe.....inches	⅛ to ¾	1 to 2	1 to 2	2½, 3
Number of Sets of Dies to Stock	3	4	4	*2
Price, Complete.....each	**16.00**	**24.00**	**30.00**	**50.00**
" Dies, per Set of Four Segments	**2.50**	**2.50**	**2.50**	**4.00**

*For 8-thread tool. When furnished 11½-thread there are three sets.

No. 00 TOLEDO RATCHET PIPE THREADER

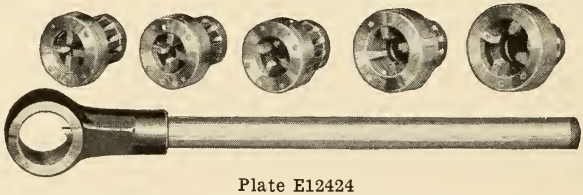


Plate E12424

Price, Ratchet.....each		**3.00**
" ⅛, ¼ and ⅜-inch Die Heads with Dies	"	**3.00**
" ½ and ¾-inch Die Heads with Dies	"	**3.50**
" Special Case	"	**1.00**

When the dies wear out you can buy new ones without buying the whole die head, at a price of 2.00 per set of four segments.

TOLEDO ADJUSTABLE PIPE THREADING DEVICES

No. 10

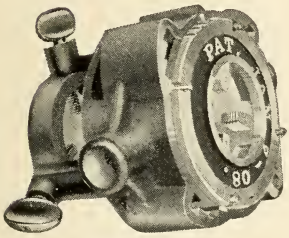


Plate E12431

NOS. 10 AND 10A

These devices are offered for those who desire tools that are entirely self-contained, threading the entire range of sizes with one set of dies. While this is not the best practice from a mechanical standpoint, yet these tools have the very desirable quality of being very simple. There is no cam die-shifting mechanism, nor other intricate parts.

The dies are easily and positively set for any given size. The same die-receding principle that has made the Toledo No. 1 model such a desirable tool, is utilized, and it threads pipe with very little effort.

No. 10A RATCHET

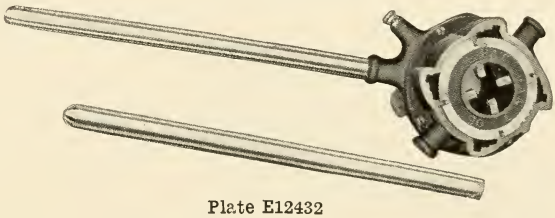


Plate E12432

The No. 10A is identical with the No. 10, except that it has a ratchet attachment.

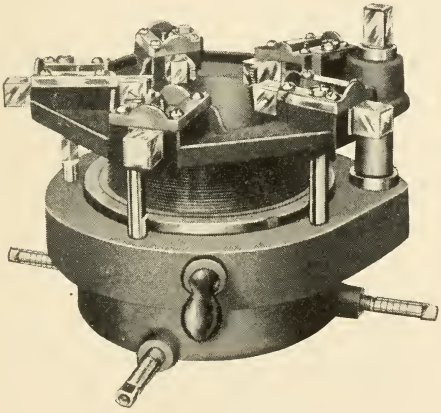


Plate E12433

NO. 25

This model differs from other Toledo Tools of similar capacity in that it is constructed to utilize but one set of dies for threading the entire range of sizes (seven). The adjustment of the dies is not accomplished by the use of a cam plate, and the weakness of that form of construction has therefore been eliminated. Two sets of dies are furnished with this model so that when one set is dull and needs grinding, another set will be in hand to take its place.

Number	10	10A	25
Threads Pipe ....inches	1 to 2	1 to 2	2½ to 6
Net Weight ....pounds	16½	22	125
Price ....each	28.00	34.00	*230.00
" Extra Dies....per set	2.75	2.75	8.00

*Complete, with dies, ratchet and driving cross.

TOLEDO GEARED ADJUSTABLE PIPE THREADING DEVICES

No. 2

This tool is light, compact and very easy in operation. It can be operated without great effort. Neither is the ease of operation obtained at the expense of speed.

The factory claims that a 4-inch thread may be completed in 10 minutes without undue effort, and that a 4-inch thread has been cut in 6 minutes.

Complete with dies, ratchet and driving cross.

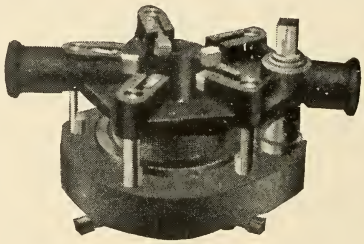


Plate E12441

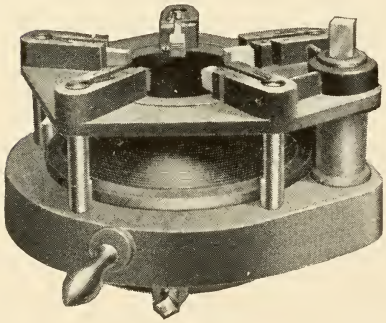


Plate E12442

No. 3

This factory also claims that one man can readily cut an 8-inch thread with the No. 3 machine, and the ease of operation is not obtained at the expense of speed.

Its net weight is 155 pounds. With clearance in other directions it may be operated on a pipe, the center of which is within 10 inches of a wall or other obstruction.

It is light, compact and easy in operation. Complete with dies, ratchet and driving cross.

No. 4

This tool will be appreciated by the engineers of large power plants, superintendents of pipe lines, and in all fields where it is desirable and necessary occasionally to cut threads on large size pipe.

It may be put on a pipe in a line, or well, any place, in fact, and the work easily accomplished.

It takes two men to put the tool on the pipe, but after it is on, one man can do the work of cutting the thread. Complete with dies, ratchet and driving cross.

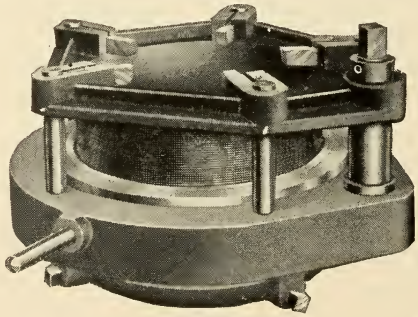


Plate E12443

Number	2	3	4
Threads Pipe.....inches	2½ to 4	4½ to 8	9, 10, 12
Net Weight.....pounds	60	155	225
Number of Sets of Dies to Stock	4	5	3
Price, Complete.....each	**100.00**	**300.00**	**500.00**
" Extra Dies, per Set of Five Segments	**8.00**	**12.00**	**20.00**

BEAVER EASY WORKING DIE STOCKS

Beaver Die Stocks use narrow receding chasers—hence are easy workers. Every tool is adjustable and threads four or more sizes of pipe. No dies to change. A self centering chuck does away with the bother of extra bushings. Tools are made from the finest quality of material and are absolutely guaranteed.

No. 6 BEAVERETTE (ADJUSTABLE)

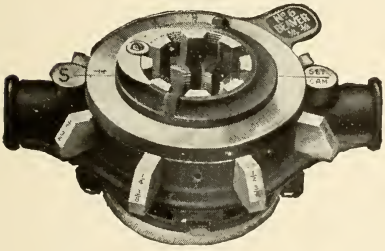


Plate E12451

Two sets of wide non-receding dies (¼ and ⅜, ½ and ¾-inch, to cover the two thread pitches) are held in the stock and operated by a single lever. No changing of dies. Provided with self-centering chuck.

Threads Pipe.....inches	¼, ⅜, ½, ¾
Price.....each	**15.00**
" Extra Dies, R. or L. ⅛, ¼ and ⅜, or ½ and ¾-inch, per set	**3.00**

No. 25 BEAVER (PLAIN) ADJUSTABLE

Threads all sizes—1, 1¼, 1½ and 2-inch—or variations from standard, without changing dies. It has a universal chuck that centers all sizes—no loose bushings. It is a complete tool—no loose parts. Steel and malleable construction.

Threads Pipe.....inches	1 to 2
Shipping Weight, Boxed.....pounds	25
Price Complete.....each	**30.00**
" Extra Dies, R. H.....per set	**3.50**

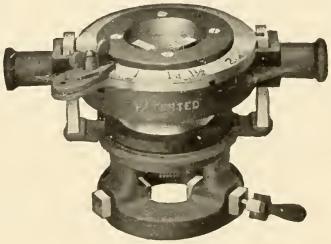


Plate E12452

No. 26 BEAVER (RATCHET) ADJUSTABLE

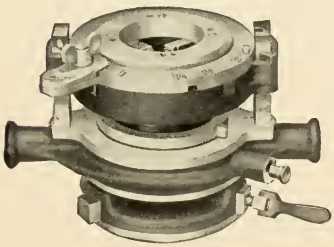


Plate E12453

Like the No. 25 in construction. It threads all sizes—1, 1¼, 1½, and 2-inch—without changing dies, and has universal chuck for centering pipe.

It has ratchet attachment for cutting in confined places, or can be used as a regular stock.

Threads Pipe.....inches	1 to 2
Shipping Weight, Boxed.....pounds	30
Price, Complete.....each	**35.00**
" Extra Dies, R. H.....per set	**3.50**

OSTER BULLDOG DIE STOCKS

REGULAR STOCK

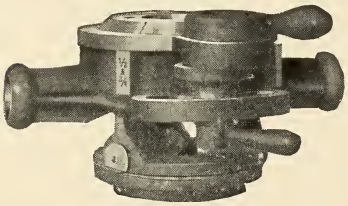


Plate E12461

RATCHET STOCK

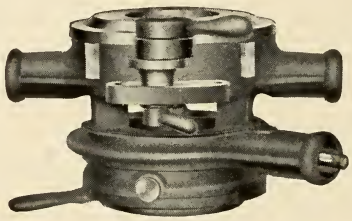


Plate E12462

This line of stocks has a positive setting arrangement without the use of any thumb screws or friction clamps of any kind. The dies are controlled by the lever handle on top, as shown in illustration. By moving this handle to the right as far as it will go, the dies are set and held in place while cutting. One movement of the top lever handle will open or close the dies. No resetting or backing off the threads.

The tool is equipped with adjustable guides which do away with loose bushings. These guides are operated on a scroll and can be set for all sizes the tool will thread. The scroll is constructed so that the guides are held in any position without locking. The more pressure on the ends of the guides, the more solid the locking arrangement. Great pressure on the ends of the guides only tends to lock them more firmly in position.

Range of Sizes of Pipe, Inches				Regular Stocks		Ratchet Stocks		Extra Dies per Set (4 Pieces)
One Set	One Set	One Set	One Set	No.	Price Each	No.	Price Each	
⅛	¼ and ⅜	½ and ¾	.....	101	13.00	.....	....	1.50
¼ and ⅜	½ " ¾	1 " 1¼	.....	102	17.00	102R	20.00	1.75
1 " 1¼	1½ " 2	.....	.....	103	22.00	103R	27.00	2.00
½ " ¾	1 " 1¼	1½ and 2	.....	104	25.00	104R	30.00	2.00
¼ " ⅜	½ " ¾	1 " 1¼	1½ and 2	104½	28.00	104½R	33.00	2.00
1½ " 2	2½ " 3	.....	.....	105	40.00	105R	50.00	3.00
1 " 1¼	1½ " 2	2½ and 3	.....	105½	43.00	105½R	53.00	3.00
2½ " 3	3½ " 4	.....	.....	107	55.00	107R	60.00	3.50
1½ " 2	2½ " 3	3½ and 4	.....	107½	58.50	107½R	63.50	3.50
.....	2½ " 3	3½ " 4	4½ and 5	....	....	108R	75.00	5.00
1½ " 2	2½ " 3	3½ " 4	4½ " 5	....	....	108½R	80.00	5.00

BULLDOG DIE STOCKS, No. 82

This tool has brand new features. The double-end dies (¼ and ⅜-inch on one end—½ and ¾-inch on the other) are protected by a casing; hence teeth cannot cut user's hands or be damaged when stock is thrown about.

The dies have a stop on each side so that they cannot be set beyond proper place in stock.

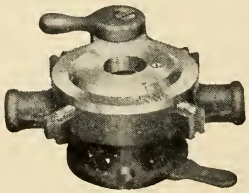


Plate E12463

Price, Complete, Cutting ¼, ⅜, ½ and ¾ inch ..... each	13.00
" Extra Dies, Right or Left ..... per set (four pieces)	2.00
" " for ⅛-inch Dies ..... " " "	2.00

OSTER DIE STOCKS AND PIPE MACHINES

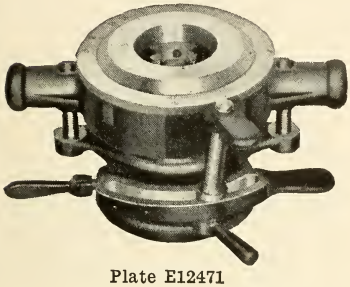


Plate E12471

MATCHLESS DIE STOCKS

Receding dies. No loose bushings. No change of guides. Easy cutting dies. Protected leader screw.

Number	1B	3B	*3BR	*4BR
Threads Pipe..inches	½&¾	1 to 2	1 to 2	2½ to 4
Weight.....pounds	10	25	36	120
Price, Complete, each	**14.50**	**30.00**	**35.00**	**80.00**
" Extra Dies...per set	**1.50**	**2.00**	**2.00**	**5.00**

*Ratchet.

GEARED DIE STOCKS

With adjustable centering chuck. These are portable pipe tools. Can be used as a die stock, as a bench tool, or complete with tripod stand. Strictly a one-man outfit.

These tools have no leader screw; the dies are started with a lever handle. One movement of the lever brings the head to position for the next cut without backing over the finished threads. No pipe vise required.

Number	16	17
Threads Pipe.....inches	2½ to 4	2½ to 6
Shipping Weight, with Bracket...pounds	310	425
" " " Tripod.. "	400	550
Sets of Dies.....	1	4
Price, with Bench Bracket...each	**110.00**	**185.00**
" " Tripod..... "	**125.00**	**200.00**
" Extra Dies..per set of four pieces	**4.00**	**5.00**

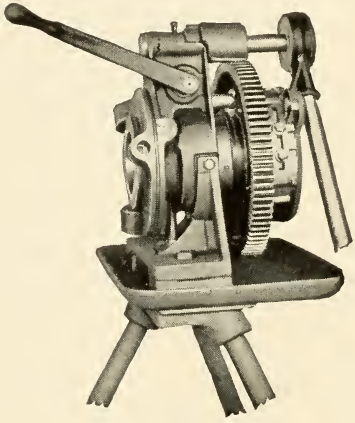


Plate E12472

Nos. 204 AND 206

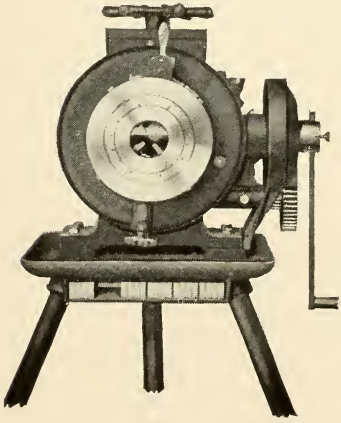


Plate E12473

HAND MACHINES

The dies in these machines are self-locking with one movement of the setting handle. Throw it one way and the pipe is released; throw it the other way and the dies are set to the same size. The dies thread two sizes without change. Vise is self-centering and straight threads are assured. Gears are all machine cut and entirely protected from chips or accidents.

Number.....	*201	204	206
Threads and Cuts off Pipe..inches	¼ to 2	1 to 4	1 to 6
Sets of Dies.....	4	4	6
Price, with Tripod and Pan....each	**105.00**	**225.00**	**375.00**
Deduct for Tripod..... "	**10.50**	**15.00**	**37.50**
" " Oil Pan.... "	**4.50**	**6.00**	**9.00**
Extra Dies, R. or L. . per set of four pieces	**4.50**	**6.00**	**7.50**

*No. 201 does not have a cutting-off attachment.

OSTER PIPE AND NIPPLE MACHINES

BELT-DRIVEN

No. 300A

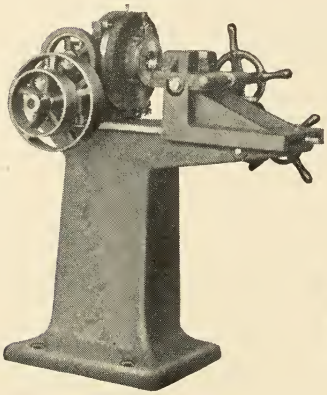


Plate E12481

NIPPLE JAW

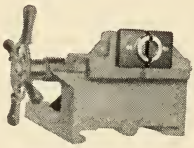


Plate E12482

Nos. 304A AND 306A

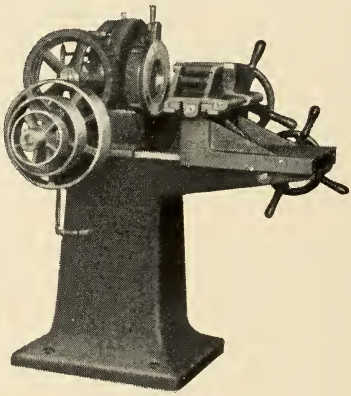


Plate E12483

No. 300A

Price, Machine, Complete with Countershaft, Oil Pump, Automatic Cut-off, Automatic Die Release and Four Sets of R. H. Pipe Dies, (¼ and ⅜), (½ and ¾), (1 and 1¼) and (1½ and 2) ..... each **315.00**

No. 304A

Price, Machine, Complete with Countershaft, Oil Pump, Automatic Cut-off, Pipe Rest Stand, Automatic Die Release and Four Sets of R. H. Pipe Dies, (1 and 1¼), (1½ and 2), (2½ and 3) and (3½ and 4) ..... each **475.00**

No. 306A

Price, Machine, Complete with Countershaft, Oil Pump, Automatic Cut-off, Pipe Rest Stand, Automatic Die Release and Six Sets of R. H. Pipe Dies, (1¼), (1½ and 2), (2½ and 3), (3½ and 4), (4½ and 5) and (6) each **660.00**

ACCESSORIES AND EXTRAS

For Machine ..... number	300A	304A	306A
Price, Extra Pipe Dies, Right or Left (Four Pieces) ..... per set	**4.50**	**6.00**	**7.50**
Add for ½ and ¾-inch Pipe Dies and Extra Jaws	.....	**15.00**	.....
" " ½, ¾ and 1-inch Pipe Dies and Extra Jaws	.....	.....	**26.25**
" " 1-inch Pipe Dies and Extra Jaws	.....	.....	**15.00**
Price, Extra Cutting-off Blades ..... each	**1.00**	**1.00**	**1.00**
Deduct for Cut-off, if not wanted	**37.50**	**37.50**	.....
" for Automatic Die Release	**15.00**	**22.50**	**22.50**
*Add for Nipple Jaws (Two Pieces) ..... per set	**11.00**	**11.00**	**15.00**
Shipping Weight ..... pounds	1100	1625	2400

*Nipple jaws will hold thread to thread nipples. One set will hold one size nipple only.

Bolt dies can be furnished for these machines at additional cost.

Separate catalogue giving detailed information, on application.

OSTER PIPE AND NIPPLE MACHINES

MOTOR-DRIVEN

No. 300B

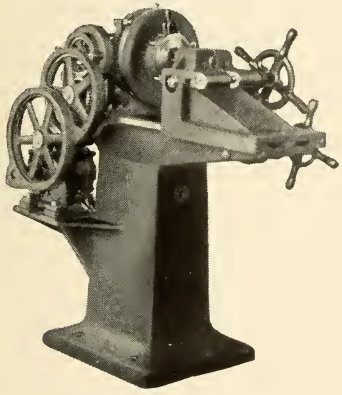


Plate E12491

No. 304B

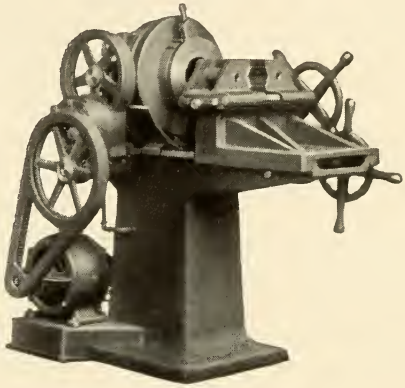


Plate E12492

No. 300B

Price, Machine, Complete with Motor with Proper Control, Oil Pump, Automatic Cut-off, Automatic Die Release and Four Sets of R. H. Pipe Dies, (¼ and ⅜), (½ and ¾), (1 and 1¼) and (1½ and 2) . . . . . each **465.00**

Has same capacity and the extras and deductions are the same as No. 300A belt-driven machine. Shipping weight, 1000 pounds.

No. 304B

Price, Machine, Complete with Motor with Proper Control, Oil Pump, Automatic Cut-off, Pipe Rest Stand, Automatic Die Release and Four Sets of R. H. Pipe Dies, (1 and 1¼), (1½ and 2), (2½ and 3) and (3½ and 4), each **700.00**

Has same capacity and the extras and deductions are the same as No. 304A, belt-driven machine. Shipping weight, 1750 pounds.

No. 306B

Price, Machine, Complete with Motor with Proper Control, Oil Pump, Automatic Cut-off, Pipe Rest Stand, Automatic Die Release and Six Sets of R. H. Pipe Dies, (1¼), (1½ and 2), (2½ and 3), (3½ and 4), (4½ and 5) and (6) . . each **925.00**

Has same capacity and the extras and deductions are the same as No. 306A belt-driven machine. Shipping weight, 2700 pounds.

Can also furnish 8-inch machines, either belt or motor-driven, if wanted. Prices on application.

Separate catalogue giving detailed information, on application.

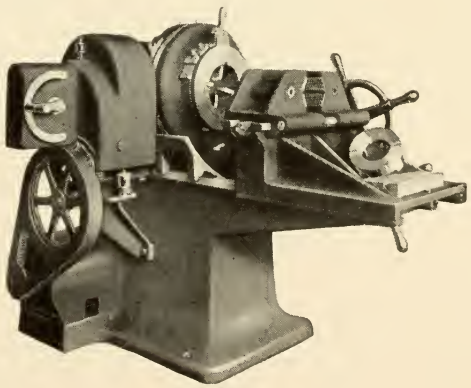


Plate E12493

PUMP MAKERS STOCKS AND DIES

LIGHTNING

SINGLE STOCK

Plate E12501

DOUBLE STOCK

Plate E12502

TRIPLE STOCK

Plate E12503

Size Inches	Threads	Single Stocks Price, Each Complete	Single Stocks Price, Each Extra Dies	Double Stocks Price, Each Complete	Double Stocks Price, Each Extra Dies	Triple Stocks Price, Each Complete	Triple Stocks Price, Each Extra Dies
3/8	14	1.70	1.15	3.00	1.15	5.25	1.15
7/16	12	1.90	1.30		1.30		1.30
1/2	12	2.20	1.50	....	....		1.50

GREEN RIVER SCREW PLATES

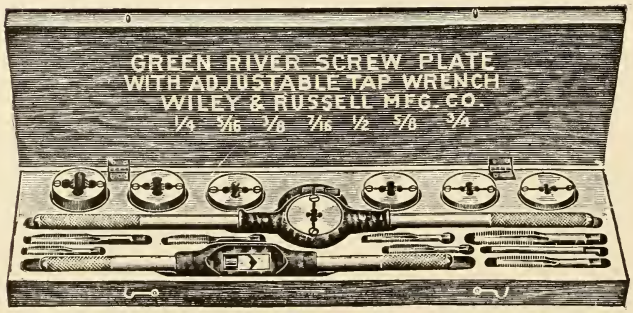


Plate E12504

No.	Length of Stock Inches	Diameter of Dies Inches	Size of Taps, Dies and Guides, Inches	Price per Set
1104	22	2 3/16	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	14.00
1112	29	2 3/4	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1.....	24.00

PIPE CUTTERS

TRIMO

Plate E12511

CAST IRON

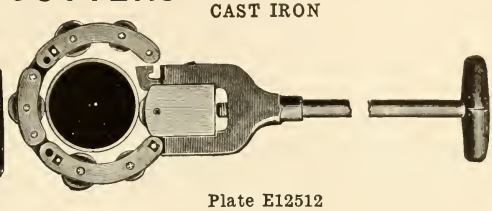


Plate E12512

TRIMO

Number	1	2	3
Cuts Pipe.....inches	⅛ to 1¼	½ to 2	1 to 3
Price.....each	4.50	6.00	10.00
" Extra Wheels..... "	.30	.30	.40
" " Rolls..... "	.30	.30	.40

CAST IRON

Number	1
Cuts Pipe.....inches	4, 6, 8
Price.....each	25.00
" Extra Loops with Wheels..... "	7.00
" " Blocks " " ..... "	.95
" " Wheels..... "	.23

BARNES THREE-WHEEL

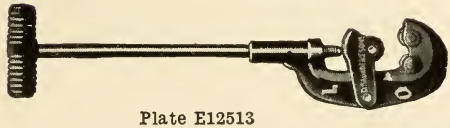


Plate E12513

SAUNDERS

Plate E12514

BARNES THREE-WHEEL

Number	1	2	3	4	5	6	6½	7
Cuts Pipe....inches	⅛ to 1	½ to 2	1½ to 3	2½ to 4	4 to 6	6 to 8	8 to 10	9 to 12
Price.....each	4.50	6.00	10.00	20.00	30.00	40.00	45.00	50.00
Extra Wheels... "	.25	.30	.40	.50	.75	.75	.75	.75
Extra Wheel Pins...per doz.	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00

SAUNDERS

Number	1	2	3	4	5
Cuts Pipe.....inches	⅛ to 1	1 to 2	2 to 3	2½ to 4	4 to 6
Price.....each	3.00	4.50	11.00	18.00	28.00
" Extra Wheels..... "	.24	.32	.60	.60	.60
" " Block and Wheel... "	1.25	1.75	2.75	3.50	4.00
" " Rollers..... "	.24	.32	.50	.50	.60
" " Pins..... "	.10	.10	.15	.15	.15

BEAVER SQUARE END

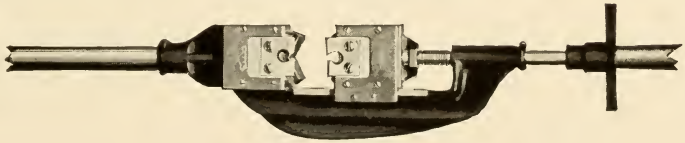


Plate E12515

Number	1	5	10	15
Cuts Pipe.....inches	⅛ to 1	½ to 2	2½ to 4	2½ to 6
Price.....each	18.00	20.00	90.00	180.00
" Extra Knives.....per set of two	1.20	1.50	2.50	5.00

NYE PIPE CUTTERS AND KNURLED CUTTER WHEELS

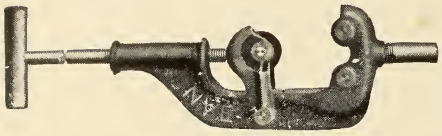


Plate E12521

Equipped with patented knurled cutter wheels. These wheels are made from the best tool steel and are different from other cutter wheels in respect to size and material used. They are made expressly for use on heavy steel pipe.

The bottom of the No. 2 cutter frame is tapped for ½-inch pipe, thus allowing the use of an extra handle which is furnished with the tool.

After using this two-handled tool an operator will seldom use any other form. The convenience of this extra handle cannot be appreciated until the tool is tried. It obviates the necessity of reaching around or over the pipe at each turn of the cutter.

PIPE CUT WITH ORDINARY CUTTER SPREADING METAL APART

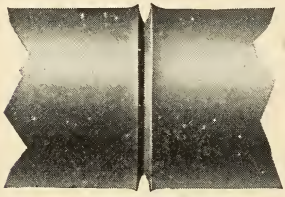


Plate E12522

PIPE CUT WITH NYE PIPE CUTTER MAKING A SQUARE CLEAN CUT

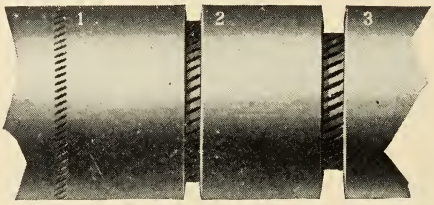


Plate E12523

The rolls are large and have an extremely wide bearing. The cutter wheel has the same width of bearing. Bearing pins are made of tool steel.

Number	1	2
Cuts Pipe ..... inches	⅛ to 1¼	½ to 2
Price ..... each	3.00	4.50

KNURLED CUTTER WHEELS

(Patented)

The knurled cutter wheels actually remove metal in cutting, making an absolute square cut. Made to fit all standard makes of pipe cutters, such as the Nye, Barnes, Saunders, Armstrong and "Trimo." In use the knurled cutter wheels act like a saw. They do not simply spread the metal apart as ordinary cutter wheels do, but they make a square clean cut, as shown in the illustration, and do the work easier than common cutter wheels. They are made of tungsten-alloy tool steel, hardened and tempered in oil. They are guaranteed to cut through pipe with fewer turns of the cutter and less labor than any other type of cutter wheels now on the market.

CUTTER WHEEL

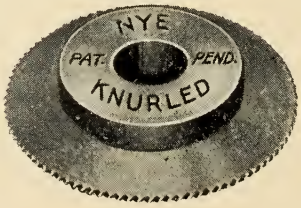


Plate E12524

Style of Cutter	Barnes		Saunders		Nye		"Trimo"	
Number	1	2	1	2	1	2	1	2
Price ..... each	.50	.60	.50	.60	.70	.80	.60	.60

WRENCHES

TRIMO PIPE WRENCHES

REGULAR

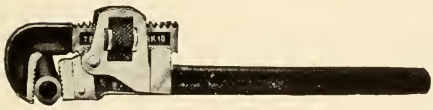


Plate E12531

NARROW JAW

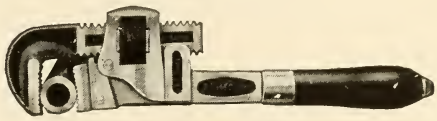


Plate E12532

Length, open.....inches	6	8	10	14	18	24	36	48
Takes Pipe..... "	⅛to½	⅛to¾	⅛ to 1	¼to1½	¼ to 2	¼to2½	½to3½	1 to 5
Price .....each	2.00	2.25	2.50	3.50	5.00	7.25	13.50	20.00
" Movable Jaws .. "	.75	.80	.85	1.15	1.75	2.25	4.35	7.50
" Inserted..... "	.35	.40	.50	.60	.70	.80	1.10	2.00
" Frames ..... "	.38	.42	.50	.60	.75	.95	1.70	2.20
" Nuts ..... "	.12	.15	.20	.30	.35	.55	1.10	1.50
" Springs ..... "	.03	.03	.03	.03	.04	.04	.04	.04
" Frame Pins..... "	.03	.03	.04	.04	.04	.04	.05	.05
" Jaw " ..... "	.03	.03	.04	.04	.04	.04	.05	.05

Narrow jaw wood handle pipe wrenches made in 6, 8 and 10-inch sizes only.

STILLSON PIPE WRENCHES

Plate E12533

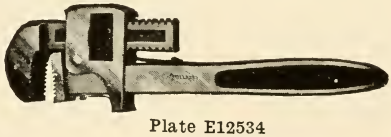


Plate E12534

Length, open.....inches	6	8	10	14	18	24	36	48
Takes Pipe..... "	⅛to½	⅛to¾	⅛ to 1	¼to1½	¼ to 2	¼to2½	¼to3½	1 to 5
Price .....each	2.00	2.25	2.50	3.50	5.00	7.25	13.50	20.00
" Jaws ..... "	.75	.80	.85	1.15	1.75	2.25	4.35	7.50
" Frames ..... "	.38	.42	.50	.60	.75	.95	1.70	2.20
" Wood Handles.. "	.16	.16	.18	.25	.28	....	....	.....
" Steel " .. "	.95	1.00	1.10	1.50	2.25	3.50	7.00	10.50
" Nuts ..... "	.12	.15	.20	.30	.35	.55	1.10	1.50
" Springs ..... "	.10	.10	.10	.10	.10	.11	.13	.13

Wrenches 6 to 8 inches, with wood handles; 8 to 48 inches steel handles.

MACHINISTS' SCREW WRENCH

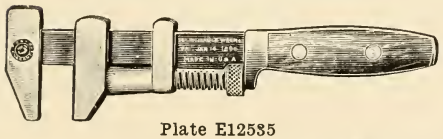


Plate E12535

BEMIS & CALL COMBINATION WRENCH

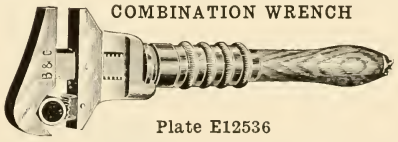


Plate E12536

MACHINISTS' SCREW WRENCHES

Size .....inches	6	8	10	12	15	18	21
Opens..... "	⅞	1¼	1¾	2⅛	2 9/16	3⅛	4
Price, Black.....per dozen	10.00	12.00	14.00	18.00	24.00	32.00	39.00
" Bright..... "	14.00	16.00	19.00	24.00	32.00	42.00	51.00

BEMIS AND CALL COMBINATION WRENCHES

Size.....inches	8	10	12	15	18
Takes Pipe Diameter..... "	¼ to ¾	¼ to 1	½ to 1¾	½ to 2¼	½ to 3
Price, Short Nut.....per dozen	21.00	23.00	26.00	37.00	66.00
" Long " ..... "	23.00	25.25	28.50	40.50	72.00

WRENCHES

WESTCOTT ADJUSTABLE S WRENCHES

Malleable Iron Handle, Forged Steel Jaw

NUT

Plate E12541

PIPE

Plate E12542

Size ..... inches	6	8	10	12	14
S Wrench opens ..... "	¾	1	1⅜	1⅝	2
S Pipe Wrench takes Pipe..... "	⅛ to ⅜	⅛ to ¾	⅛ to 1	⅛ to 1¼	⅛ to 1½
Price, Nut Jaws ..... each	.15	.20	.30	.35	.40
" Pipe " ..... "	.25	.35	.40	.50	.60
" Thumbscrews ..... "	.10	.12	.15	.15	.20
" Pins ..... "	.05	.05	.05	.05	.05
" Adjust. S NutWrenches....per doz.	8.00	10.00	12.00	15.00	21.00
" " S Pipe Wrenches... "	8.00	10.00	12.00	15.00	21.00

ALLIGATOR WRENCHES

No. 1½

Plate E12543

Nos. 2, 3, AND 4

Plate E12544

Number	Pocket	No. 1	No. 1½	No. 2	No. 3	No. 4	No. 5	Twin
Length.....inches	4	5¾	5¾	9	16	22	27	10
Holds Pipe.... "	⅛ to ¼	⅛ to ⅜	⅛ to ⅜	⅜ to ¾	½ to 1¼	1¼ to 2	2 to 3	⅛ to ¾
" Round Iron "	¼ " 9/16	¼ " ¾	⅜ " ¾	½ " 1	¾ " 1⅜	1½ " 2½	2¼ " 3½	¼ " 1
Price..... per dozen	3.00	4.00	4.50	12.00	24.00	36.00	60.00	18.00

PARMELEE PIPE WRENCHES

Plate E12545

Number.....	1	2	3	4
Length of Handle.inches	10	20	25	.....
Price, Complete.... each	5.00	7.50	9.50	13.00
Takes Pipe .....inches	⅜, ½, ¾, 1	1, 1¼ 1½, 2	2, 2½, 3	3 4
Price, Girths only.. each	.75	1.00 1.25	1.50	2.50 3.00
" Wrench without Girths "	2.25	3.00	5.00	7.50

STOCKS AND DIES, AND WRENCHES

LITTLE GIANT ALUMINUM STOCKS AND DIES

FOR THIN METAL TUBING

Plate E12551

In order to secure the necessary lightness, these stocks are made of aluminum with wooden handles and internal guides. The wooden internal guides support the tubing and prevent its being crushed or distorted. Nikeled pipe cannot be marred on the surface when using the internal guide.

Regularly furnished with one aluminum stock, righthand dies, all 27 threads, and wooden internal guides as specified, in a plain substantial box.

No.	Weight Pounds	Cutting Sizes	Length, Stocks Inches	Price Each
276	2½	* 1, 1⅛, 1¼, 1⅜, 1½	20	**12.00**
277	3	† 1¾, 2, 2¼	30	**20.00**

*Cutting any three sizes. †Cutting any two sizes.

REED STRAP WRENCHES

WITH STRAP IN POSITION FOR USE ON MEDIUM OR HEAVY WEIGHT TUBING

Plate E12552

WITH STRAP IN POSITION FOR USE ON LIGHT TUBING TO AVOID CRUSHING

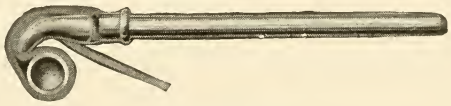


Plate E12553

For screwing up all kinds of nickel-plated and polished pipe and tubing without marring. Nickel-plated all over. When worn the straps can be changed end for end, thereby prolonging their life.

Number	12	18
Length.....inches	12	18
Takes Pipe..... "	⅛ to 2	1 to 5
Weight.....pounds	1½	3¼
Price.....each	**1.50**	**2.50**
" Straps..... "	**.25**	**.50**

WILLIAMS CHAIN PIPE TOOLS

IMPROVED "VULCAN" CHAIN PIPE TONGS

WITH CABLE CHAIN

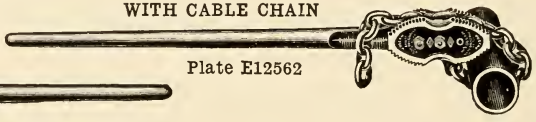


Plate E12562

WITH FLAT LINK CHAIN

Plate E12561

Double-ended, reversible jaws, readily turned when teeth first in use wear, provide for service of two tools at price of one. Unsurpassed strength, all parts interchangeable and fully warranted.

Number Improved Pattern.....	30	31	32	33	33½	34	35	*16
Length .....inches	13¾	20	27	37	44½	50½	64½	87
Takes Pipe..... "	⅛ to ¾	⅛ to 1½	¼ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12	4 to 18
Price, with Flat Link Chain each	2.50	3.50	5.00	7.00	9.00	11.00	18.00	40.00
" " Cable Chain.... "	2.50	3.50	5.00	7.00	9.00	11.00	18.00	40.00
" Extra Flat Link Chains ..... "	.75	1.00	1.50	2.50	3.50	4.50	7.50	20.00
" " Cable Chains ... "	.75	1.00	1.50	2.50	3.50	4.50	7.50	20.00
" " Jaws..... per pair	1.00	1.75	2.75	4.00	4.75	5.50	7.50	16.00

*For pipe, etc., over 12 inches in diameter, only old style "Vulcans" are furnished.

"AGRIPPA" CHAIN PIPE AND FITTINGS TONGS

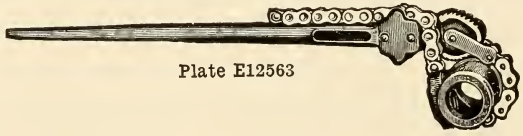


Plate E12563

Universal for pipe and fittings.

For the tight, narrow places and bites on irregular forms when the parallel jaw chain wrench would fail. A single narrow powerful jaw for both pipe and fittings.

Number	20	21	22	23	23½	24	25
Length .....inches	13¾	20	27	37	44½	50½	64½
Takes Pipe Fittings.. "	⅛ to ¾	⅛ to 1½	¼ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12
Price.....each	2.50	3.50	5.00	7.00	9.00	11.00	18.00
" Extra Jaws..... "	1.00	1.75	2.75	4.00	4.75	5.50	7.50
" " Chains .... "	1.00	1.25	1.75	2.75	4.00	5.00	8.00

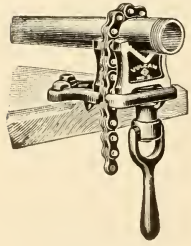


Plate E12564

"VULCAN" CHAIN PIPE VISES

Number	1	2	4
Holds Pipe.....inches	⅛ to 2	¼ to 4	¾ to 8
Price, Complete.....each	3.50	7.50	18.00
" Extra Jaws.....per pair	1.50	3.50	9.00
" " Chains (with Screw) .....each	1.25	2.40	6.00
" " Handle and Nut..... "	1.10	2.10	3.50
" " Screws..... "	.40	.70	1.25
" " Nuts..... "	.70	1.35	2.00

PIPE TONGS, WRENCHES, ETC.

COMMON PIPE TONGS

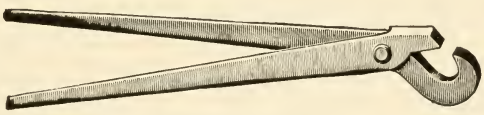


Plate E12571

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price.....each	.60	.65	.70	.75	.90	1.10	1.30	1.50	1.90	2.50	4.00

BROWN'S ADJUSTABLE PIPE TONGS

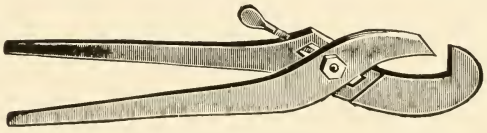


Plate E12572

Number.....	1	1 1/2	2	3	4	5	6	7
Takes Pipe, inches	1/8 to 3/4	3/8 to 1	1/2 to 1 1/4	1 to 2	1 1/2 to 3	2 1/2 to 4	3 to 5	4 to 7
Price.....each	.60	.75	.85	1.20	2.70	6.00	10.00	11.00

NEVER-SLIP ROD TONGS

Plate E12573

NEVER-SLIP ROD TONGS

Price.....each 1.00

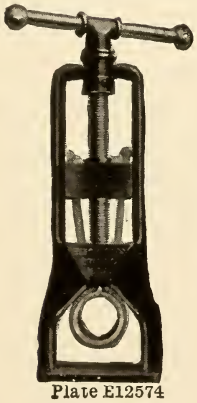


Plate E12574

STRAP PIPE VISES

Designed for holding all kinds of nickel-plated and polished pipe and tubing without marring.

The handle is out of the way and is easily used without regard to the way the vise is faced to the bench.

It is a decidedly improved form of vise, and does not require a separate bushing for each diameter of tubing or pipe, as in the ordinary vises. There are no bushings to lose, and no time is required for changing to different sizes. It is always ready for any size within its capacity.

The use of rosin, whiting or chalk on the strap is necessary to prevent its slipping.

Number.....	51
Holds Pipe.....inches	1/8 to 2
Price.....each	4.00
" Straps..... "	.50

NYE PIPE VISES

POCKET VISES

No. 1, OPEN

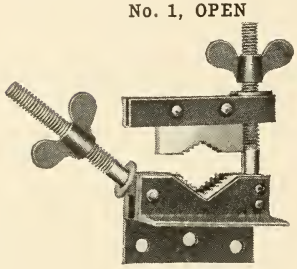


Plate E12581

These little vises are just as effective as vises many times their weight. They can be easily carried in a coat pocket.

The frames in these vises are made of angle iron, while the jaws are made from high-grade tool steel, hardened and tempered, and absolutely guaranteed in every particular. The long screws are made of cold-rolled steel, case hardened.

They are made to meet a demand for a light, compact vise which can be used on a job for repair work. They can be fastened securely with four tenpenny nails. All parts of these little vises are so strong they will last a lifetime. Made in two sizes as listed.

No. 2, CLOSED

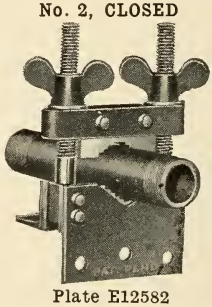


Plate E12582

Number	1	2
Holds Pipe ....inches	⅛ to 1¼	⅛ to 2
Weight ....pounds	1½	2½
Price ....each	2.50	3.50

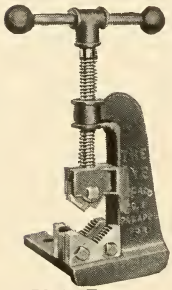


Plate E12583

BENCH PIPE VISES, No. 1

This vise is different from other pipe vises in the construction of the jaws, the upper jaw being V shape, and acting like a swivel.

The strength of one finger is sufficient to tighten the vise so that it will resist any turn or pull that in any way may be applied.

The jaws are made of the finest tool steel, hardened and tempered, and the entire mechanism is superior in material and workmanship. The long screw is made of cold-rolled steel.

It can be used as a bench vise or can be instantly attached to any post, tree or telegraph pole.

No nails, screws, wrench or other tools necessary to fasten the vise with the attachment. The chain is steel, and guaranteed to stand a strain of 2000 pounds. The chain attachment can be easily removed from the vise body, if desired, or it can be fastened to the vise permanently. The chain attachment itself has no separate parts to become lost.

The vise holds pipe from ⅛ to 2 inches, inclusive, including 2-inch pipe coupling.

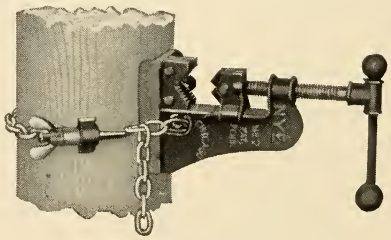


Plate E12584

Price, Vise Complete with Chain Attachment 7.50
" " only 4.00

PIPE VISES

Plate E12591

STANDARD

Designed to replace the old line of standard vises. Apron in front has been discontinued. Hooks and jaw clamps strengthened. Jaws have two bolts. Hardened solid tool steel jaws, oil tempered. Self-locking. Guaranteed throughout.

Number	71	72	73
Holds Pipe ..... inches	1/8–2 1/2	1/8–3 1/2	1/8–4 1/2
Price ..... each	10.00	15.00	25.00
" Jaws (Three) .... per set	3.00	4.50	6.00

KIT PIPE VISES

This vise meets the demand for a vise small enough to be readily carried, easily attached to a bench, and yet of sufficient strength and capacity to be truly serviceable. It is particularly handy for threading pump rod in the field, as it can be attached in a few seconds to the tailboard of a wagon.

Plate E12592

Number	0	1
Capacity ..... inches	1/8 to 2	1/8 to 2 1/2
Price, with Attachment ..... each	10.00	12.00
" without Attachment ..... "	8.00	10.00

COMBINATION PIPE VISES

With Solid Pipe Jaw

STATIONARY

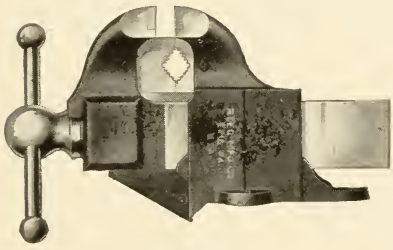


Plate E12593

SWIVEL

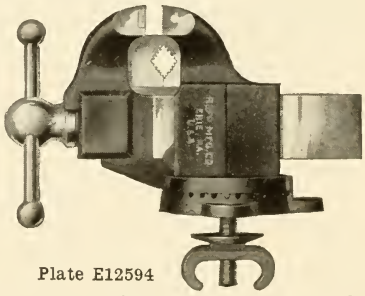


Plate E12594

For severe service, and having ample cross section at all points where metal is needed. Solid tool steel pipe jaws, oil-tempered, with front jaw reversible. The main nut has a milled base which fits into a milled slot in the body. All jaws have hardened tool steel facings. All parts finished to limit gauges, and interchangeable. The swivel base improved by lugs on the base plate so that it may be securely bolted to the bench, instead of using wood screws.

Number, Stationary	931	932	933	934
" Swivel	31	32	33	34
Width of Jaw ..... inches	3 1/2	4 1/2	5	6
Capacity, Pipe ..... "	1/8 to 2 1/2	1/8 to 3 1/2	1/8 to 4 1/2	1/8 to 6
Weight, Stationary ..... pounds	45	70	115	170
" Swivel ..... "	46	72	119	178
Price, Either Style ..... each	16.00	20.00	28.00	35.00
" Jaws (Three) ..... per set	1.25	1.50	1.75	2.50

PIPE BENDING FORMS AND COMBINATION PIPE VISES WITH BENDING FORMS

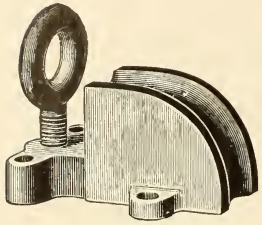


Plate E12601

VANDERMAN PIPE BENDING FORMS

For Straightening and Bending Pipe

This form makes a handy and indispensable fixture for a pipe bench. There is nothing about it to get out of order, and it will last a lifetime. In making bends in light tubes or nickel plated pipe a piece of sheet lead or leather placed on form and eye bolt will prevent any finished work from being marred.

Number	1	2
Takes Pipe.....inches	⅛ to 1¼	1 to 2
Price.....each	3.50	4.50

VANDERMAN
IMPROVED PATENTED COMBINATION PIPE VISES

THREE COMBINATIONS IN ONE
No. 1

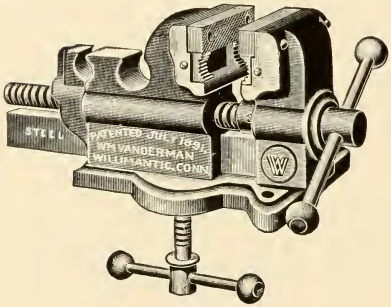


Plate E12602

CONSTRUCTED WITH STEEL SLIDING BAR
No. 3

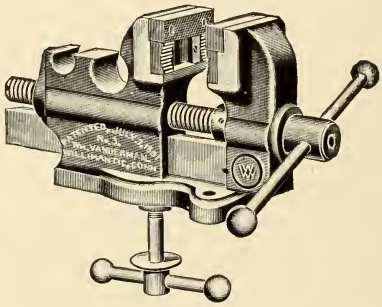


Plate E12603

The Vanderman Vise has large jaw surface for holding pipe, irregular surface work or fittings, forms for bending pipe, form or anvil surface to hammer on. The arrangement of pipe jaws permits of cutting close work. One of the strongest and most practicable vises on the market.

A combination pipe vise, to be useful and practical, must admit of each part of the combination being independent of the other. The combinations in the Vanderman Vise are independent of each other and do not conflict. It is a perfect combination vise and has many good advantages. It is strongly made and the parts made to duplicate and will give satisfaction. The sliding bar, screws, handles and joints are made of steel, and all the parts have been put to, and have stood the severest tests.

Number	0	1	3
Holds Pipe.....inches	⅛ to 2½	⅛ to 7	⅛ to 10
With Bending Form up to..... "	1	1½	2
Weight.....pounds	49	95	155
Price.....each	15.00	20.00	30.00

Pipe jaws may be instantly removed, reversed or repaired. All parts for Vanderman Vises are made interchangeable.

PIPE TAPS, REAMERS, ETC.

PIPE TAPS

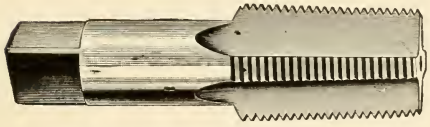


Plate E12611

Left-hand taps same price as right-hand.

Diameter . . . inches	1/8	1/4	3/8
Price . . . . . each	1.12	1.25	1.50
Diameter . . . inches	1/2	3/4	1
Price . . . . . each	1.87	2.50	3.12
Diameter . . . inches	1 1/4	1 1/2	2
Price . . . . . each	3.75	4.62	6.25
Diameter . . . inches	2 1/2	3	3 1/2
Price . . . . . each	10.50	15.00	22.00
Diameter . . . inches	4	. . . . .	. . . . .
Price . . . . . each	33.00	. . . . .	. . . . .

PIPE REAMERS

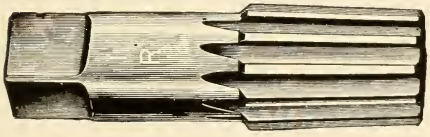


Plate E12613

Left-hand taps same price as right-hand.

Diameter . . . inches	1/8	1/4	3/8
Price . . . . . each	1.12	1.25	1.50
Diameter . . . inches	1/2	3/4	1
Price . . . . . each	1.87	2.50	3.12
Diameter . . . inches	1 1/4	1 1/2	2
Price . . . . . each	3.75	4.62	6.25
Diameter . . . inches	2 1/2	3	3 1/2
Price . . . . . each	10.50	15.00	22.00
Diameter . . . inches	4	. . . . .	. . . . .
Price . . . . . each	33.00	. . . . .	. . . . .

COMBINED DRILL, REAMER AND TAPS

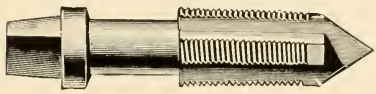


Plate E12615

Diameter . . . . . inches	1/2	3/4	1
Price . . . . . each	3.00	4.50	6.00
Diameter . . . . . inches	1 1/4	1 1/2	2
Price . . . . . each	7.25	8.50	10.75

MUELLER PIPE END REAMERS

Patented

No. 1, PLAIN

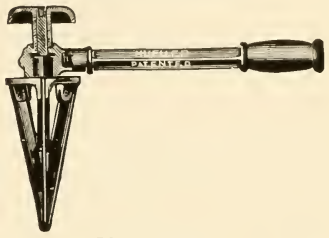


Plate E12612

No. 2, WITH RATCHET

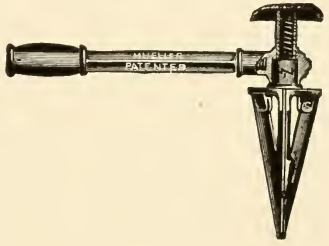


Plate E12614

The ends must be reamed after cutting if the full carrying capacity is to be retained.

Pipe cutters leave a burr which is an obstruction to a free flow through the pipe, and reduces the pipe area as follows:

Size of Pipe Inches	Inside Diameter Inches	Diameter at Burr Inches	Per Cent Loss of Area if Not Reamed
1/4	23/64	1/4	59.4
3/8	1/2	3/8	43.8
1/2	5/8	33/64	31.2
3/4	53/64	45/64	28.0
1	1 3/64	59/64	22.5
1 1/4	1 3/8	1 9/32	13.2
1 1/2	1 39/64	1 31/64	15.0
2	2 1/16	1 61/64	7.01

The ratchet used with No. 2 is so constructed that the strain is divided into half a dozen bearings, greatly increasing the durability of the tool. Reams pipe from 3/8 to 3 inches, inclusive.

Price, No. 1, Plain . . . . . each	6.00
" " 2, with Ratchet . . . . "	7.50
" Small Pattern, with Ratchet 3/8 to 1 1/4 inches . . . . . each	5.00

BRICK AND STONE DRILLS

SEDCO STAR DRILL, FOR BRICK AND STONE

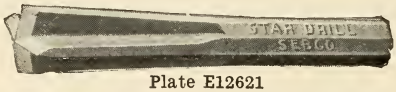


Plate E12621

To meet the requirements of the man who drills the holes, and who heretofore was experiencing difficulty in obtaining a drill that will stand the severe test his work calls for, the manufacturers have endeavored to produce a tool that will stand the strain—and stand it thoroughly. The increasing demand for Star Drills has proven their reliability.

STAR STONE DRILLS

Length, Inches	Diameter of Cutting Edge, Inches												
	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4
12..per dozen	8.50	8.50	8.50	9.00	10.00	12.00	14.00	16.00	18.00	24.00	30.00	50.00	75.00
18.. "	11.00	11.00	11.00	11.50	12.50	15.00	17.50	20.00	22.50	28.00	35.00	56.00	81.00
24.. "	13.50	13.50	13.50	14.00	15.00	17.50	20.00	22.50	25.00	32.00	40.00	62.00	87.00

Drills of intermediate diameters take the next higher list.
Drills of larger diameters or longer furnished at proportionate list price.

STAR DRILL POINTS AND DRILL HOLDER

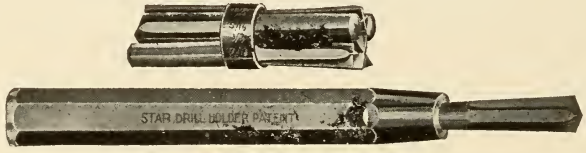


Plate E12622

This tool is used and preferred by up-to-date workmen because of its durability. A set comprises any assorted six drill points and one holder, neatly packed in a wooden box. These drills wear a long time before redressing is needed. Will drill 2½ to 3½ inches in depth. The set just fits the hip pocket. A man does not have to carry a full set of heavy drills with him to a job—with this set he can drill a hole from ¼ to ¾ inch quickly, easily and neatly.

STAR DRILL POINTS

Diameter of Cutting Edge.inches	1/4	9/32	5/16	3/8	13/32	7/16	1/2	5/8	3/4
Price.....per dozen	8.50	8.50	8.50	8.50	9.00	9.00	10.00	12.00	14.00

STAR DRILL HOLDERS

Price, ¾-inch Octagon Steel, 6 inches Long.....per dozen	24.00

The holder being ¾ inch in diameter enables a good grip to be taken and strong blow struck, either of which is difficult with drills of smaller diameter.
The same holder can be used for all sizes of drill points.

COMBINATION SHELL DRILLS, ETC.

COMPLETE COMBINATION SHELL DRILL

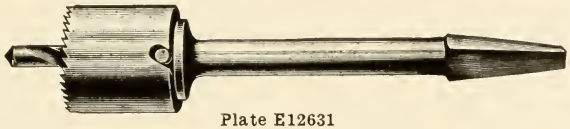


Plate E12631

STEM AND CENTER DRILL

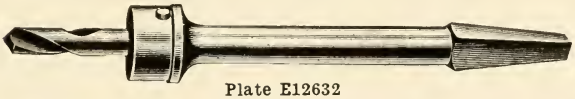


Plate E12632

COMPLETE COMBINATION SHELL DRILLS

Number of Set	A	B	C	D
Shells in Set I. P. Size, inches	3/8	3/8, 1/2	3/8 to 3/4	3/8 to 1
Price, Set Complete, each	2.00	3.25	4.50	6.00
Number of Set	E	F	G	H
Shells in Set I. P. Size, inches	3/8 to 1 1/4	1/8 to 1 1/2	3/8 to 2	3/8 to 2 1/2
Price, Set Complete, each	8.50	11.50	15.50	20.50

STEMS AND CENTER DRILLS

Price, Stem with Center Drill to fit Shells 3/8 to 3 inches, each	.75
" 1/4-inch Threaded Center Drills for Stems, "	.40

COMBINATION DRILL SHELLS

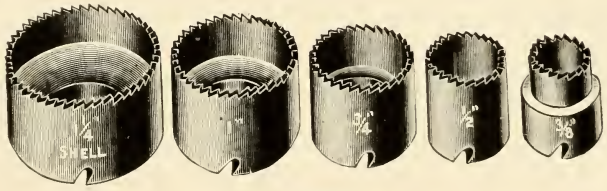


Plate E12633

Iron Pipe Size, inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Outside Diameter, "	3/4	15/16	1 1/8	1 3/8	1 11/16	1 15/16	2 7/16	2 15/16	3 5/8
Price, Shell only, each	1.25	1.25	1.25	1.50	2.50	3.00	4.00	5.00	6.00

BIT BRACE BURRING REAMERS

Plate E12634

Number	241	242	242 1/2	244
Diameter of Point, inches	7/32	7/16	5/16	15/16
" " Butt, "	3/4	1 9/32	1 15/32	2 9/32
Reams Pipe, "	1/8 to 1/2	3/8 to 1	1/4 to 1 1/4	1 to 2
Price, each	1.00	1.25	1.50	3.00

PLUMBERS' TOOLS

STAR HACK SAW BLADES

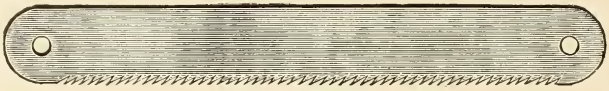


Plate E12641

Length .....inches	6	7	8	9	10	11	12	*12
Width.....inches	3/8	3/8	3/8	3/8	1/2	1/2	1/2	5/8
Price.....per dozen	.60	.65	.70	.75	.85	.95	1.00	1.35

These blades have 14 teeth to the inch and are adapted to general work. Blades with 24 teeth to the inch for thin tubing or thin sheets furnished when so specified.

*For power machine.

HACK SAW FRAMES

No. 4

Plate E12642

No. 10, ADJUSTABLE

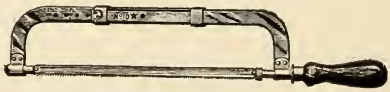


Plate E12643

No. 4, CAST IRON

Number	4A	4B	4C	4D
Takes Blades.....inches	8	9	10	12
Depth under Back..... "	2¼	2¼	2¼	2¼
Price, without Blades.....per dozen	4.20	4.40	4.60	4.70

No. 10, ADJUSTABLE

Number.....	10
Depth under Back .....inches	2⅜
Price, with One 10-inch Blade.....per dozen	20.00

Adjustable for blades 8 to 12 inches.

COMPASS SAW

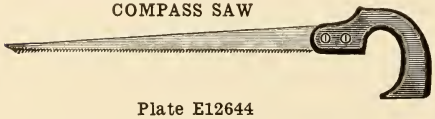


Plate E12644

NEST OF SAWS, No. 3

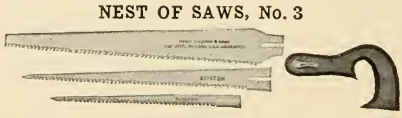


Plate E12645

COMPASS SAWS

Size .....inches	10	12	14
Price .....per dozen	3.50	3.50	3.50

NEST OF SAWS, No. 3

Price, Handle and Tightener .....per dozen		1.75
" Keyhole Blades, 10 inches Long.....	"	2.00
" Compass " 14 " "	"	2.75
" Pruning " 16 " "	"	5.50
" Nests, Complete.....	"	12.00

PLUMBERS' TOOLS

GAS PROVING PUMPS

WITH SPRING GAUGE

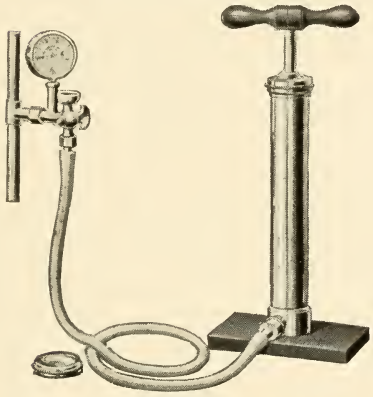


Plate E12651

WITH MERCURY GAUGE

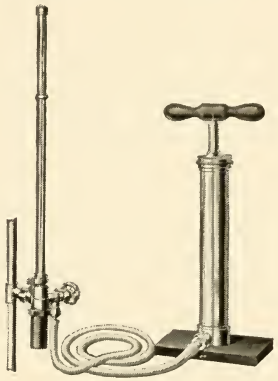


Plate E12652

Price, Pump Complete, with Brass Case Spring Gauge ..... each	30.00
" " " " Mercury Gauge ..... "	25.00
" " and Hose only ..... "	15.00
" " only ..... "	13.00
" Brass Case Spring Gauge, Valve and Ether Cup	15.00
" " " " " only ..... each	10.00
" Mercury Gauge, Valve and Ether Cup	10.00
" Valve and Ether Cup only	5.00
" Mercury Cup only ..... each	4.00
" Ether " " ..... "	.50

STYLE C

Plate E12653

CHAIN DRILLS

For Metal or Wood—Ball-bearing

Style C. Fitted with universal chuck and takes round shank or bit stock drills 1/16 to 1/2-inch.

Style D. With extra long chuck and openings for round shank and square taper shank drills.

STYLE D

Plate E12654

Style	C	D
Price, Plain Feed ..... per dozen	33.00	27.00
" Self-feeding ..... "	60.00	52.00

No. 1

Plate E12655

"RAPID" TAP PLUGS

The "Rapid" Tap Plug is invaluable for every plumber, engineer, steam fitter and all repairmen generally. It makes and taps its own hole—no drilling required.

Number	1	2	3	4	5
Size of Thread ..... inches	5/16	3/8	7/16	1/2	9/16
Diameter of Head ..... "	5/8	11/16	13/16	7/8	15/16
Price ..... per dozen	3.50	3.50	4.00	4.00	4.25

PLUMBERS' TOOLS

THREADED

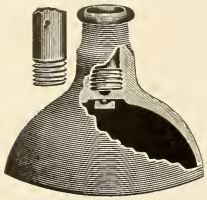


Plate E12661

WITH HOLLOW BRASS HANDLE

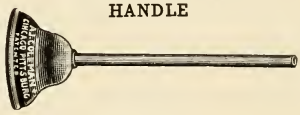


Plate E12662

A special high-grade red rubber cup with a cast brass thimble, having internal screw threads vulcanized into neck of cup to attach hollow brass handle, whose opposite end is sealed, thereby greatly increasing the adhesive and sucking action of this cup.

Price, Threaded, Regular, 4¼-inch, with 42-inch Handle	each	1.00
" Corrugated	"	1.00
" with 18-inch Hollow Brass Handle; Diameter of Cup, 5½ inches	"	1.75

FORCE PUMPS
EXTERIOR SECTIONAL

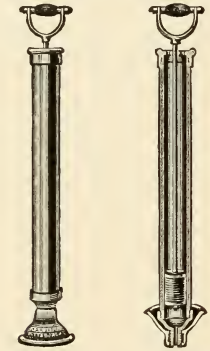


Plate E12663 Plate E12664

CLOSET CLEANER

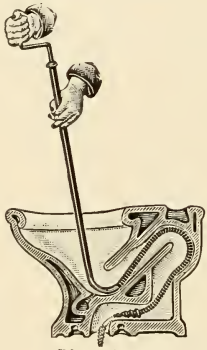


Plate E12665

THAWING STEAMER

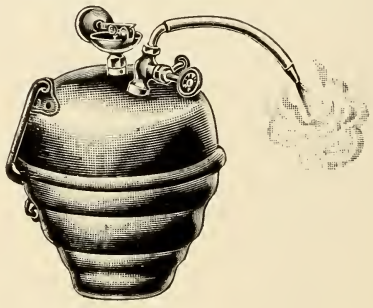


Plate E12666

FORCE PUMPS

Improved Suction and Force Pumps are made expressly for removing obstructions from plumbing fixtures. They are equipped with a reversible rubber cup with screw connection. Will fit any opening up to 5-inch. Made of brass with a piston packed with graphite ring packing. Diameter, 2 inches; length, 22 inches.

Price	each	7.00

CLOSET CLEANERS

With this closet cleaner you can remove the stoppage from any closet bowl. The coil is ½-inch. Made of the best 12 gauge spring steel. The tube is made entirely of brass.

Price, with 3-foot Coil	each	5.00
" " 6 " "	"	6.00

THAWING STEAMERS

Price, with Safety Valve and Filling Cock	each	5.00

PLUMBERS' TOOLS

BALL PEIN HAMMER

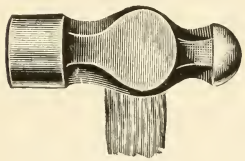


Plate E12671

RATCHET BRACE

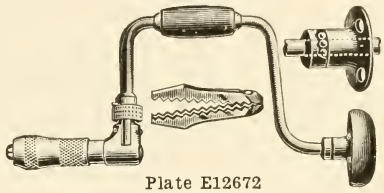


Plate E12672

BALL PEIN HAMMERS

Number....	000	00	0	1	2	3	4	5	6	7	8
Weight.....	8 oz.	12 oz.	1 lb.	1¼ lbs.	1½ lbs.	1¾ lbs.	2 lbs.	2¼ lbs.	2½ lbs.	2¾ lbs.	3 lbs.
Price.per dozen	12.00	12.00	12.50	13.50	14.50	15.50	16.50	17.50	19.00	20.50	22.00

BRACES

Price, Ratchet Brace, 10-inch Sweep	each	2.10
" Plain " 10 " "	"	.40

EXPANSIVE BITS

Plate E12673

Number	1	2
Cuts.....inches	½ to 1½	⅞ to 3
Price.....per dozen	18.00	26.00

EXTRA CUTTERS FOR EXPANSIVE BITS

Number.....	1	2	3	4	5	6
For Bit Number.....	1	1	2	2	2	2
Size.....inches	½ to ⅞	⅞ to 1½	⅞ to 1¾	1¾ to 3	3 to 4	4 to 5
Price.....per dozen	3.00	3.75	5.25	6.00	9.00	12.00

SCREWDRIVER

Plate E12674

FILE

Plate E12675

RASP

Plate E12676

SCREWDRIVERS

Length of Blade.....inches	4	6	8	10	12
Price.....per dozen	4.25	6.00	8.00	10.00	12.00

FILES AND RASPS

Length.....inches	10	12	14
Price, Flat Files.....each	.40	.60	.80
" Half Round Rasps..... "	.75	1.05	1.40

Plate E12677

"TRIMO" BASIN WRENCHES

Price	each	1.25

PLUMBERS' TOOLS

GREASE, ROSIN AND FLOUR BOX

Plate E12681

POCKET SPIRIT LEVEL

Plate E12682

MEASURING TAPE

Plate E12683

RULE

Plate E12684

Price, Grease, Rosin and Flour Boxes, Medium Sizes	each	1.50
" Pocket Spirit Levels	"	.17
" Regular Wood Spirit Levels	"	.42
" Measuring Tapes, 25-foot, Cloth	"	.32
" " " 50 " "	"	.42
" " " 100 " "	"	.75
" 2-foot Rules, Plain	"	.20
" 2 " " Brass Bound	"	.70

COMBINATION PLIERS

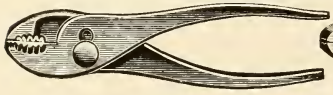


Plate E12685

GAS PLIERS

Plate E12686

BURNER PLIERS

Plate E12687

COMBINATION PLIERS

Length ... inches	6	8	10
Price, Black ... per dozen	13.50	16.00	18.00
" Nickel-plated ... "	15.00	18.00	21.00
" Extra Bolts ... each	.07	.08	.10
" " Nuts ... "	.05	.06	.06

GAS AND BURNER PLIERS

Length ... inches	5	6	7	8	10	12	14
Price, Gas Pliers ... per dozen	.....	.....	.....	8.25	10.70	13.00	17.00
" Burner Pliers ... "	6.50	6.50	10.00	.....	.....	.....	.....

SNIPS
REGULAR PATTERN

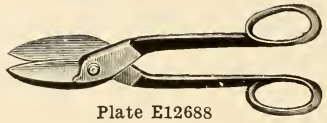


Plate E12688

BELT, RUBBER AND PACKING SHEARS

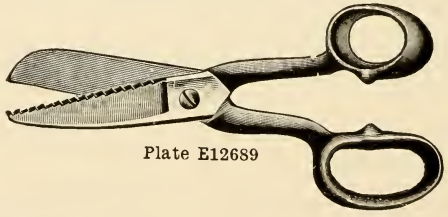


Plate E12689

SNIPS

Cuts ... inches	3	4	3 Circular
Price ... each	1.50	2.50	2.50

BELT, RUBBER AND PACKING SHEARS

These shears are of the highest grade steel and will cut leather or rubber belting, rubber hose, asbestos, packing and similar material much better than a knife.

Price ... each	3.50

PLUMBERS' TOOLS

LEAD AND SOLDER MOULDS

PIG LEAD MOULD

Plate E12691

INGOT LEAD MOULD

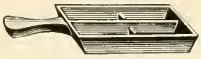


Plate E12692

BAR SOLDER MOULD

Plate E12693

Price, Pig Lead	each	2.40
" Ingot Lead	"	1.20
" Bar Solder	"	2.40

TACK MOULDS

PLAIN, DOUBLE

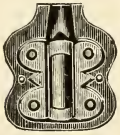


Plate E12694

STAR, DOUBLE

Plate E12695

NYE WIPING CLOTH

Plate E12696

TACK MOULDS

Price, Double, Plain or Star	each	2.00
" Single, " " "	"	1.50

NYE WIPING CLOTHS

Sizes ... inches	2x2, 2½x2½ 3x3	3½x3½	4x4
Price, Best Quality Herringbone Ticking, 16-ply Dry . per dozen	1.90	2.10	2.30
" Genuine English Moleskin, 8-ply Dry ... "	2.75	3.00	3.15

SOLDERING COPPERS

POINTED PATTERN

Plate E12697

SWIVEL HATCHET PATTERN

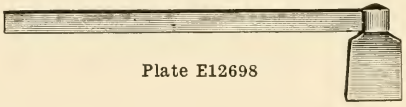


Plate E12698

Weight, per Pair ... pounds	1	1½	2	2½	3	4
Price, Pointed Pattern ... per pound	.36	.33	.32	.31	.30	.30
" Hatchet " ... "	...	...	...	...	.35½	.35½
Weight, per Pair ... pounds	5	6	8	10	12	....
Price, Pointed Pattern ... per pound	.30	.30	.30	.30	.30	....
" Hatchet " ... "	.35½	.35½	...	...	...	....

PLUMBERS' TOOLS

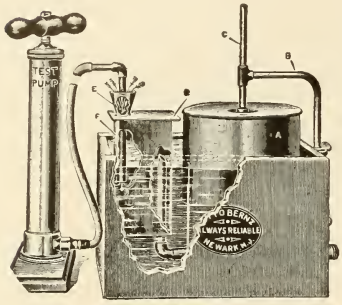


Plate E12701

SMOKE TEST MACHINE

Price	each	24.00
" with Test Pump	"	28.50
" " " " Hose and Couplings	"	31.50

BIBB SEAT DRESSER

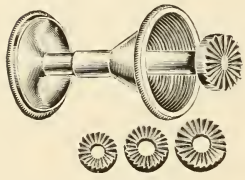


Plate E12702

WASHER CUTTER

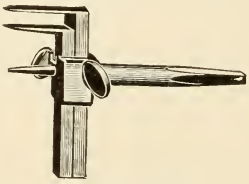


Plate E12703

PLUMBER'S CANDLE

Plate E12704

Price, Bibb Seat Dresser with 3/8, 1/2, 5/8 and 3/4-in. Cutters	each	2.00
" Washer Cutter	"	.84
" Plumbers' Candles	per pound	.20
" " "	per 20 pound box	3.20

TOOL BAGS

STYLES A TO F

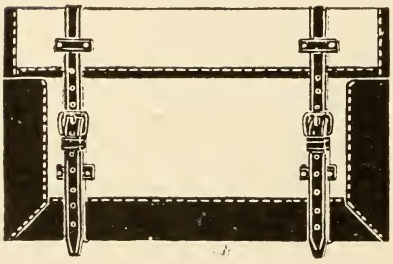


Plate E12705

STYLE G

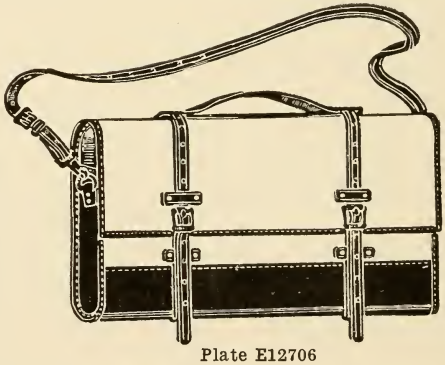


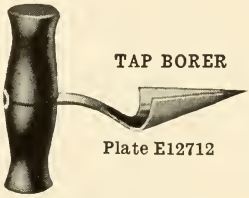
Plate E12706

Price, Style A, 16x25-inch Carpet Tool Bag, 3 1/2-inch Leather Trimmings, Sides and Bottom, Top Bound for 3/4-inch Leather	each	4.40
" Style C, same as Style A, except Sides Bound for 3/4-inch Width Leather, Bottom without Binding	"	3.50
" Style F, 12x24-inch Carpet Tool Bag, 3 1/2-inch Leather Bottom Trimmings	"	5.00
" Style G, 15x24-inch Carpet Tool Bag, 3 1/2-inch Leather Bottom Trimmings	"	6.00

PLUMBERS' TOOLS

OVAL SHAVE HOOK

Plate E12711



TAP BORER

Plate E12712

LEAD PIPE EXPANDING PLIERS

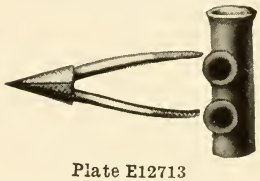


Plate E12713

Price, Oval Shave Hook	each	.25
" Tap Borers	"	.30
" Lead Pipe Expanding Pliers	"	1.50

TURN PIN

Plate E12714

DRIFT PLUG

Plate E12715

DRESSER

Plate E12716

Price, Turn Pins, Nos. 1, 2 and 3, Boxwood	each	.21
" Drift Plugs, 1, 1¼, 1½ and 2-inch, Boxwood	"	.15
" Dressers, Boxwood	"	1.00

BENDING SPRING

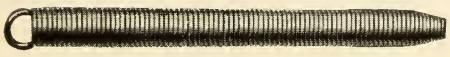


Plate E12717

BENDING PIN

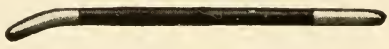


Plate E12718

Price, Bending Springs, 1¼-inch	each	1.25
" " " 1½ "	"	1.50
" " " 2 "	"	2.00
" " Pins	"	.27

WING DIVIDERS

Plate E12719

COMPASS

Plate E127110

Price, Wing Dividers, 5 or 6-inch	each	.46
" " " 8-inch	"	.63
" Compasses, 6-inch	"	.34

CALKING CHISELS, ETC.

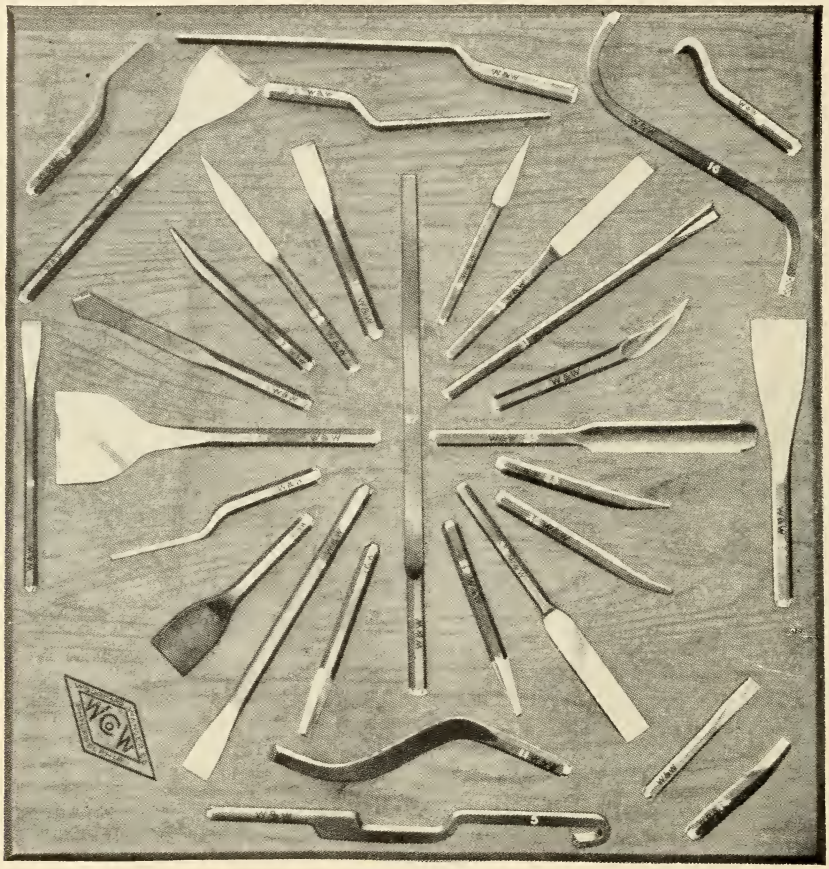


Plate E12721

No.	Description	Price, Ea.	No.	Description	Price, Ea.
1	Bent Picking Chisel, 7½ in. Long....	.76	21	Floor Chisel, ¾x10x2½ in.....	1.24
2	Brick Chisel, ½x10 in.....	.70	22	" " ¾x12x3 "	1.64
3	" " ¾x12 "	.80	23	Gasket Iron, ⅛ Bend, 6½ in. Long...	.70
4	Cape " ½x 7 "	.70	24	" " ¾x10 in.....	.74
5	Calking Iron, Ceiling, 14 in. Long.....	2.00	25	" " ¾x14 "	.80
6	" " Double., 9 " "	1.00	26	" " ¾x16 "	1.00
7	" " " 16 " "	1.20	27	" " ¾x18 "	1.00
8	" " ⅛ Bend, Outside, 4 in. Long...	.76	28	Packing Chisel, Hvy., Curved, ¾x8x1½ in....	.74
9	" " ⅛ " Inside, 4 " " ...	.76	29	Round Nose Chisel, 8 in. Long.....	.70
10	" " L. H. Offset, 10 in. Long	1.10	30	Star Drill, ¾x14x1 in.....	2.00
11	" " R. H. " 10 " "	1.10	31	" " ½x10x¾ ".....	.90
12	" " 8 in. Long.....	.74	32	Straight Joint Chisel, 10 in. Long...	.74
13	" " Short, 6½ in. Long.....	.72	33	Wood Chisel, ¾x10 in.....	.84
14	" " Outside Stub, 4 in. Long..	.60	34	" " 1x11 "	1.00
15	" " Inside " 4 " " ..	.60	35	" Gouge, 1x11 " Outside Bevel.	1.30
16	" " S Shape.....	1.30	36	Calking Iron, Outside, 7 in. Long....	.74
17	Cold Iron Chisel, ½x6 in.....	.52	37	" " Inside, 7 " "	.74
18	" " " ⅞x8 "	.90	38	Closet Spud Wrench, 1¼x2 in.....	1.32
19	Diamond " Nose.....	.80	39	Bending Pin.	.60
20	Floor Chisel, ¾x10x2 in.....	1.12	40	Wrecking Tool.....	3.80

C. & L. FIRE POTS AND TORCHES

FOR GASOLINE

No. 71

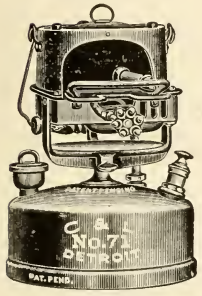


Plate E12731

No. 21

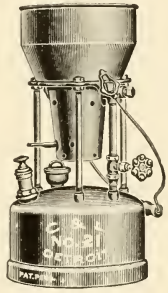


Plate E12732

No. 11

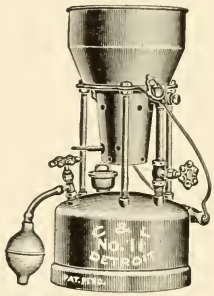


Plate E12733

No. 71. Noiseless, smokeless and odorless. Has sub-flame for generator. Burner has double heating surfaces. The gas is superheated and produces a very hot flame.

No. 21 Steel Fire Pot is extra strong and durable. Tank is heavy gauge with bottom and fittings welded in (not soldered). Extra heavy uprights and top plate and large filler. Fitted with automatic brass pump.

No. 11 is the same as No. 21, but has rubber bulb to produce pressure.

Number	71	21	11
Capacity.....pints	7	8	8
Price.....each	**13.60**	**9.60**	**8.80**

No. 32

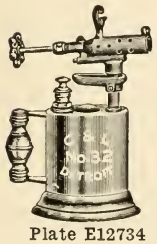


Plate E12734

No. 31

Plate E12735

No. 18

Plate E12736

No. 19

Plate E12737

No. 32 Torch is unsurpassed where intense heat is desired. Produces a perfect blue flame indoors or out, in hard wind or extreme cold. Bronze metal burner has generating chamber, superheating the gas and producing a hot blue flame. Burner has attachment for holding soldering coppers.

No. 31 is the same as No. 32, but without hook and support for holding soldering coppers.

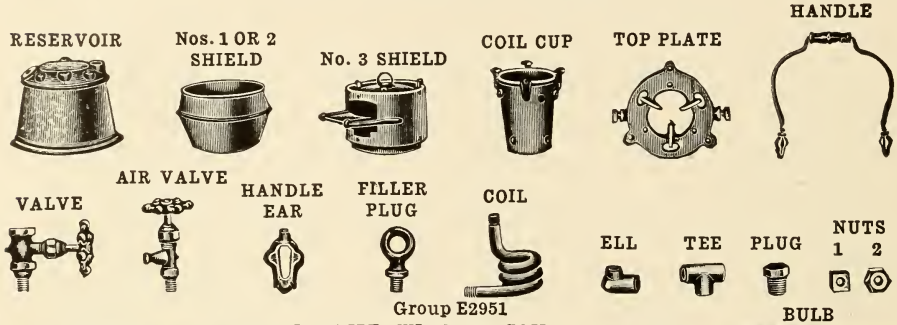
No. 18 Torch is snugly built, rendering it light, yet strong and easily handled in close work. The bottom handle casting is made with a recess in which the check valve works automatically.

No. 19 is the same as No. 18, with the addition of the attachment on the burner for holding soldering coppers.

Number	32	31	18	19
Capacity.....pints	2	2	1	1
Price.....each	**8.00**	**7.60**	**6.00**	**6.40**

C & L FIRE POT AND PUMP REPAIRS

COIL FIRE POT REPAIRS

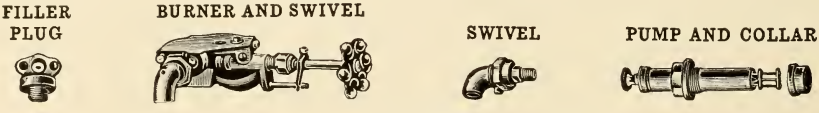


Group E2951

Group E12741

Description	Each	Description	Each	Description	Each
Reservoir	2.40	Handle Ear	.12	Nuts, Nos. 1 or 2	.04
Nos. 1 or 2 Shield	.70	Filler Plug	.40	Upright	.12
No. 3 Shield	1.60	Coil	.60	Connecting Pipe	.12
Coil Cup	.40	Ell or Tee, Mall	.10	Wire for Coil	.08
Top Plate	.30	Ell, Brass	.14	Burner	.14
Handle	.40	Tee, "	.20	Bulb	.48
Valve	.60	Plug	.08	Brass Pump for No. 20	1.28
Air Valve	.40	...	...	...	....

FIRE POT REPAIRS



Group E12742

Description	Each	Description	Each	Description	Each
Filler Plug	.40	Burner and Swivel	4.00	Pump for Fire Pot	1.28
Filler " Collar	.15	Swivel	1.00	" Collar	.15

PUMP REPAIRS

Group E12743

Description	Each	Description	Each	Description	Each
Cup Leathers	.08	Cork Seat	.02	Plunger Rod	.20
Hexagon Nuts	.02	Springs	.03	Plunger Complete	.50
Pump Caps	.10	Cork Holder	.10	Pump Complete	1.28
Plunger Knobs	.10	End Plates	.08	" Collar	.15

LADLES, POTS AND JOINT RUNNERS

LADLE

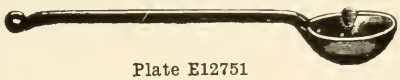


Plate E12751

REGULAR

Size.....inches	2½	3	3½	4	5	6
Price.....per doz.	2.75	3.50	4.00	4.75	6.50	8.00

EXTRA HEAVY

Size.....inches	6	7	8	9	10
Price.....per doz.	10.00	12.00	15.00	20.00	24.00

SOLDER POT

Plate E12752

POURING POT

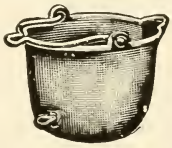


Plate E12753

SOLDER POTS

Size.....inches	5	6	7	8	10	13½
Price.....each	.50	.65	.80	1.10	1.75	3.50

POURING POTS

Price, 8-inch.....each	3.50

IMPROVED JOINT RUNNERS

SQUARE ASBESTOS

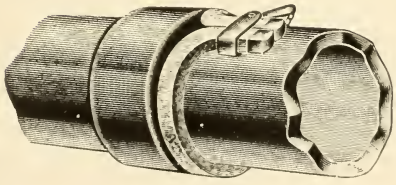


Plate E12754

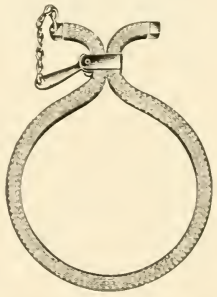


Plate E12755

Number.....	1	2	3	4	5
Size.....inches	¾	¾	1	1	1¼
For Pipe..... "	2, 3, 4	4, 5, 6	6, 8, 10	10, 12, 14	16, 18, 20
Price..... each	2.85	3.25	5.60	6.50	10.35

Number.....	6	7	8	9	.....
Size.....inches	1¼	1¼	1¼	1¼	.....
For Pipe..... "	24	36	42	48	.....
Price..... each	11.70	16.95	18.15	19.35	.....

LEAD MELTING FURNACES

ON WHEELS

WITH DOOR

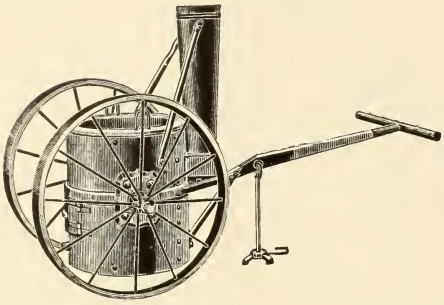


Plate E12761

WITH DOOR AND POT RACK

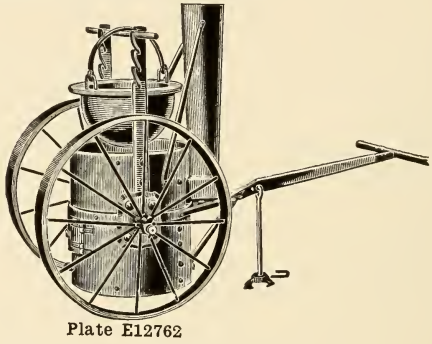


Plate E12762

ON WHEELS WITH DOOR, No. 1

Diameter, 21½ inches; height, 24 inches; diameter of pot, 16¾ inches; depth of pot, 11 inches; capacity, lead, 700 pounds.

Price	each	70.00

ON WHEELS WITH DOOR, No. 2

Diameter, 16 inches; height, 24 inches; diameter of pot, 11½ inches; depth of pot, 8 inches; capacity, lead, 260 pounds.

Price	each	63.00

ON LEGS WITH DOOR

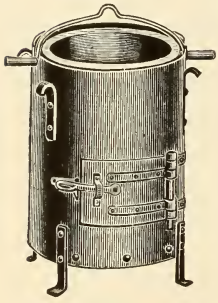


Plate E12763

ON WHEELS WITH DOOR AND POT RACK

Number		1	2
Diameter	inches	21½	16
Height	"	24	24
Diameter of Pot	"	16¾	11½
Depth of Pot	"	11	8
Capacity, Lead	pounds	700	260
Price	each	77.00	70.00

ON LEGS WITH DOOR

Number		1	2
Diameter	inches	21½	16
Height	"	24	24
Diameter of Pot	"	15½	11½
Depth of Pot	"	10½	8
Capacity, Lead	pounds	600	260
Price	each	49.00	42.00

ON LEGS WITH DOOR AND SMOKESTACK

Number		1	2
Diameter	inches	21½	16
Height	"	24	24
Diameter of Pot	"	15½	11½
Depth of Pot	"	10½	8
Capacity, Lead	pounds	600	260
Price	each	52.00	45.00

MUELLER WATER TAPPING MACHINES

FOR TAPPING WATER MAINS AND INSERTING CORPORATION COCKS UNDER PRESSURE

No. 1

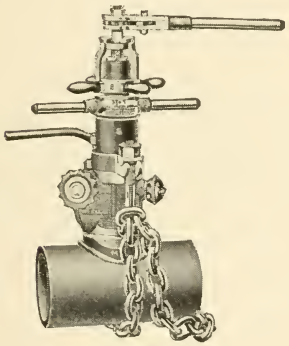


Plate E12771

No. 2

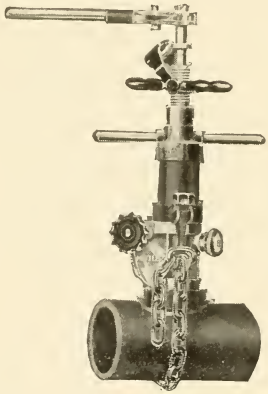


Plate E12772

These strong and compact machines are adapted for making a single tap and inserting a corporation cock in a water main under pressure, for connecting a service pipe or for making a number of taps and inserting cocks to attach to a gooseneck for large service connection.

Price, No. 1	each	90.00
" " 2	"	100.00

STANDARD EQUIPMENT

Standard equipment includes: Ratchet handle complete; combined feed nut and yoke with four-arm handle; tools with Mueller thread, sizes ½, ⅝, ¾ and 1-inch; plugs, male screw, sizes ½, ⅝, ¾ and 1-inch; malleable iron saddles, sizes for 4, 6, 8 and 10-inch cast iron pipe; small rubber gasket for top of saddles; large rubber gasket for all sizes of cast or wrought iron pipe; chain for 4 to 12-inch pipe; chain wrench, and body cleaning chisel. This equipment will always be furnished, unless otherwise specified.

EXTRA TOOLS, WITH MUELLER THREAD

Price, ½-inch Combined Drill, Reamer and Tap	each	4.00
" ⅝ " " " " " "	"	4.50
" ¾ " " " " " "	"	5.50
" 1 " " " " " "	"	6.50

½-inch tap, also taps thread for ⅜-inch corporation cock.

EXTRA DRILLS, REAMERS AND TAPS—WITH IRON PIPE THREAD

When Purchased Separately

Size	inches	⅜	½	¾	1
Price	each	4.00	4.00	5.50	6.50

Drill, reamer and tap, with standard iron pipe thread, sizes ⅜ to 1-inch, will be furnished without additional cost, when specified, instead of the four with Mueller thread given in the standard equipment.

No. 2 machine is same style and capacity as No. 1, but is heavier, and affords more power for the large taps.

STEEL TOOL CHESTS

STYLE A

Plate E12781

STYLE B

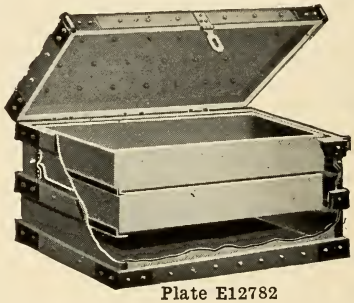


Plate E12782

Number		1	2	3	4	5
Length	inches	24	30	36	42	48
Width	"	12	15	17	20	22
Depth	"	11	14	16	19	20
Price, Style A with One Drawer	each	**18.50**	**25.00**	**28.00**	**32.00**	**36.00**
" " A " Two Drawers	"	**21.00**	**27.00**	**29.50**	**33.00**	**38.50**
" " B " One Drawer	"	**19.50**	**27.00**	**30.00**	**33.50**	**37.50**
" " B " Two Drawers	"	**20.00**	**28.00**	**30.50**	**35.00**	**39.00**

STYLE C

Plate E12783

STYLE D

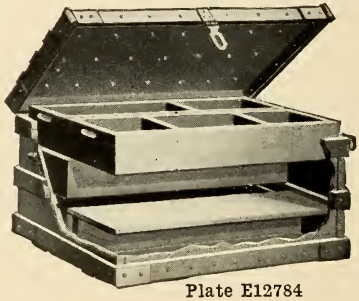


Plate E12784

STYLE C

Number	0	1	2	3	4	5	6	7	8
Length inches	24	30	36	42	48	54	60	66	72
Width "	12	12	12	12	12	12	12	12	12
Depth "	11	11	11	11	11	11	11	11	11
Price each	**15.75**	**18.50**	**22.00**	**25.00**	**29.00**	**33.50**	**36.00**	**39.00**	**43.00**

STYLE D

Number	1	2	3	4	5
Length inches	24	30	36	42	48
Width "	12	15	17	20	22
Depth "	11	14	16	19	20
Price each	**23.00**	**31.00**	**34.00**	**38.00**	**42.00**

These chests are made of 1/16-inch cold-rolled steel with malleable iron corners and hard wood braces and fitted with wrought iron hinges and hasps, brass locks and keys and bolts to screw down cover at front corners.

USEFUL INFORMATION

HINTS TO WELL DRILLERS AND DEALERS

It is a well-known fact that the lifting of water by means of a Pump is due primarily to the atmospheric pressure, without which the Pump, as we use it today, would be of no avail. Scientists reckon our atmosphere to be 120 miles deep at the sea level, where it exerts a pressure of 14.73 pounds to the square inch, and as we ascend, the pressure naturally decreases, so that if a city is 1,320 feet above sea level, the atmospheric pressure is only 14.02 pounds. (See table of Barometric Pressure, page 1282.)

When a Pump is set in working order in a well, the atmospheric pressure on the water inside the pipe is exactly equal to the pressure on the water outside of the pipe, so that the water remains at rest, but as soon as the plunger is moved up and down in pumping, the air in the pipe below the cylinder is pumped up, thus leaving a partial vacuum and then the pressure of the air inside the pipe (below the cylinder) becomes less than the pressure on the outside, so that the atmosphere pressing on the water outside of the pipe forces the water up into the suction pipe.

To quote an old axiom: "Nature abhors a vacuum," and when you remove the air from the suction pipe, nature immediately exerts herself to fill that space again, and thus water is forced up into the pipe to replace the air that has been removed; thus as we continue to pump the air from the pipe, the water continues to rise until it has reached the cylinder, where it rises above the plunger and is then lifted up to the surface, independent of any atmospheric pressure. ¦A column of water, at the sea level, 33.95 feet high, will exert the same pressure per square inch as the atmosphere, therefore the atmosphere will sustain a column of water 33.95 feet high. It follows then that the limit of suction at sea level is 33.95 feet, but it is beyond the power of man to create a perfect vacuum, so that 25 or 28 feet is about the limit that can be attained for all practical purposes.

As we ascend from the sea level to the inland hills, plateaus and mountains the limit of suction is, of course, decreased, so that we may consider 28 feet to be the extreme limit of suction, though it is safest and best to reckon on only 20 to 25 feet, as better results will be attained. (See table of Barometric Pressure, page 1282.)

From the foregoing, it will be seen that the cylinder must always be placed within 28 feet of the water at least, and preferably within 20 to 25 feet. It might be well to add here, that the nearer a cylinder is placed to the water, the better it will work, and where possible, it is always advisable to place the cylinder directly in the water.

SUCTION PIPE

The suction pipe is the pipe below the lower valves, irrespective of whether the valves are in the pump itself or in the cylinder below the pump.

We have already shown the practical vertical height of this pipe, but it is also possible to run the suction pipe a considerable distance horizontally, provided it is run in a gradual slope from the pump or cylinder to the well, but when run horizontally in this manner, it is well to use a foot valve at the bottom of the pipe so as to hold the water in the pipe when pump is not in use. Where this is done, however, the pipe must be below frost, otherwise it will freeze in extremely cold weather.

HOT WATER

A pump will not draw hot water any distance, because the vapor or steam rising from the water will fill the suction pipe instead of water, therefore, for pumping hot water, the cylinder should be very near or directly in the water, thus forcing the water upward instead of lifting it by suction. Hot water pumps should also be provided with metal valves throughout.

The above also applies to volatile oils, such as gasoline, etc., but not to kerosene.

USEFUL INFORMATION

SUGGESTIONS FOR INSTALLING AND REPAIRING IRON PUMPS

INSTALLING SHALLOW WELL PUMPS

Submerge the cylinder in a pail or tub of water, so that the leathers will be well soaked. To find length of suction pipe wanted, measure from platform to bottom of well, and deduct the length the bottom of cylinder extends below platform, deducting also the length of the strainer and enough more to make sure the strainer is far enough from the bottom of the well so that it will not stir up any sand or sediment. Be sure the suction pipe is screwed air tight into lower cylinder cap, and that lower cylinder cap is screwed tight on the cylinder shell. It is easiest to take the lower cap off the cylinder and screw the suction pipe into it, and lower them in the well, holding the cap above platform; then screw the cylinder shell tightly into the lower cap, using a large wrench to do this, as this joint must be tight; then lower the pump down to the platform and fasten it to platform with bolts or lag screws.

INSTALLING DEEP WELL PUMPS

Measure the depth of the well. Lay the pump on the ground and string out the proper amount of pipe. Near the bottom, below water level if possible, locate the cylinder with plunger 1 inch or more above the valve; then from the cylinder upward, lay out, side by side with each length of pipe, a length of steel pump rod, making sure that the upper end of the rod is at least 3 inches above the upper end of its corresponding length of pipe, so it can be coupled or uncoupled. Be sure that proper allowance is made for the threads when pipe and rod are screwed together. Screw suction pipe and strainer into lower cap of cylinder, and lower them in well, keeping cylinder above platform; then screw on the first length of rod, slipped inside the first length of pipe above the cylinder, the pipe being held above the rod coupling until it is screwed tight, then the pipe is screwed tight into the cylinder; then the next length of pipe and rod is attached in the same manner until the pump standard is reached. Piston rod or slide rod of pump then is to be screwed on to the rod, which must be cut to exact measurement here, and the pump standard is then screwed on to the pipe and fastened to the platform. Pipe holders and dogs for holding, lifting and lowering pipe in wells are shown among the tools in this catalog.

Be sure that all joints are tightly screwed together, and do not put more than one length of pipe below the cylinder.

LOCATING TROUBLE

When pumps lose their priming and the water leaks back, the cause of the trouble is below the plunger. The valve seat or the valve may be worn, or something may be lodged between valve and valve seat, preventing the valve and seat from making a tight joint. Or, it may be that the cap is not screwed tight to the cylinder shell, or, in case of the cylinder being above the water, there may be a leak in the suction pipe. In case the pump holds its priming but brings less water than it should, the probabilities are that the plunger leather is worn out, or that the face of the plunger follower and the plunger poppet do not make a good fit. In this case it is necessary to either releather the plunger or to true up the face of the plunger follower and poppet.

At times pumps work hard on the up stroke of plunger, and there is a tendency to jerk the plunger back; in this case the suction pipe or strainer is clogged, and very often it is found that the end of suction pipe is in the mud or sand.

USEFUL INFORMATION

To reduce pounds pressure to feet head, multiply by 2.3.

To reduce heads in feet to pressure in pounds, multiply by .433

Friction of liquids in pipes increases as the square of the velocity.

Doubling the diameter of a pipe increases its capacity four times.

To find the area of a pipe, square the diameter and multiply by .7854.

A cubic foot of water weighs 62½ pounds and contains 1728 cubic inches or 7½ U. S. gallons.

Approximately, every foot elevation of a column of water produces a pressure of ½ pound per square inch.

A "miner's inch"of water is approximately equal to a supply of 12 gallons per minute. In California, 9 gallons.

The gallons per minute which a pipe will deliver equals .0408 times the square of the diameter, multiplied by the velocity in feet per minute.

To find the capacity of a pipe or cylinder in gallons, multiply the square of the diameter in inches by the length in inches and by .0034.

The weight of water in any length pipe is obtained by multiplying the length in feet by the square of the diameter in inches, and by .34.

To find the discharge from any pipe in cubic feet per minute, square the diameter and multiply by the velocity in feet per minute and by .00545.

U. S. gallon of water weighs 8⅓ pounds and contains 231 cubic inches. An imperial gallon weighs 10 pounds and contains 277 cubic inches.

To find the diameter of pipe in inches, divide the gallons per minute by the velocity in feet per minute, and multiply the square root of the quotient by 4.95.

To find the capacity of a given tank or cistern in U. S. gallons, square the diameter (in feet), and multiply by .7854, multiply by the height in feet, and by 7.48.

To find the discharge in U. S. gallons per minute from any pipe, square the diameter in inches, multiply by the velocity in feet per second and by 2.448.

The discharge from a pipe in cubic feet per second is equal to the mean velocity in feet per second multiplied by the area of cross section of pipe in square feet.

Sharp angles or sudden bends in pipes cause great increase in friction, consequently increase of power is necessary. Where change of direction is desired the same should be by means of long easy curves.

To determine *theoretical horse power* to elevate water to a given height, multiply the number of gallons delivered per minute by 8.33 (weight of 1 gallon of cold water), multiply this result by the total head in feet (total head equals actual head plus head due to friction—see Friction Table). Divide this result by 33000 (33000 pounds elevated 1 foot in 1 minute equals 1 horse power). To determine *actual horse power* divide the theoretical horse power by the efficiency of the pump. EXAMPLE:

We wish to elevate 100 gallons per minute to an elevation of 100 feet through 200 feet of 2-inch pipe with two elbows and one valve in the pipe. Pump having an efficiency of 60 per cent. 100 Elevation + 43.5 (friction in 200 feet of 2-inch pipe) + 3 (friction in two elbows) + 1.7 (friction in one valve) = 148.2 Total Head.

$$\frac{100 \times 8.33 \times 148.2}{33000} = 3.74 \text{ Theo. H. P. } 3.74 \div 60\% \text{ Eff. of Pump} = 6.2 \text{ Actual H. P.}$$

To determine the efficiency of a centrifugal pump divide the theoretical horse power as above, by the actual horse power required to operate the pump, and multiply the result by 100. EXAMPLE:

$$\frac{3.74 \text{ (Theo. H. P.)} \times 100}{6.2 \text{ (Actual H. P.)}} = 60\% \text{ Efficiency of Pump.}$$

SUCTION LIFT means the vertical distance from the level of the water supply to the center of the pump, to which must be added the loss due to friction of the water in the suction pipe.

DISCHARGE HEAD means the vertical distance from the center of the pump to the center of the discharge outlet where the water is delivered, to which must be added the loss due to friction of the water in the discharge pipe.

TOTAL HEAD means the sum of the suction lift, discharge head, and all friction loss in both suction and discharge pipes.

USEFUL INFORMATION

BAROMETRIC PRESSURE

The Barometer is an instrument usually made of a glass tube and mercury and used to ascertain the weight or pressure of the atmosphere. It has been found that the atmosphere will sustain or balance a column of mercury a trifle in excess of 30 inches high. At the sea level the barometric pressure has been ascertained to be 14.73 pounds per square inch, and a column of water 33.95 feet high will exert exactly the same pressure. In other words, a column of mercury 30 inches high will sustain or balance a column of water 33.95 feet high.

It follows, therefore, that if the barometric pressure at sea level is 14.73 pounds per square inch, the atmosphere also exerts an equal pressure at the same place. Knowing the barometric pressure and equivalent head of water at various altitudes it is an easy matter to determine the practical limit of suction of lift pumps.

If it were possible to construct a pump so as to form a perfect vacuum, then it would be possible to lift water to the extreme height as registered by the barometer, but such not being the case, we must make allowance for all defects of construction and base our estimate according to our ability to construct.

BAROMETRIC PRESSURE AT VARIED ALTITUDES WITH EQUIVALENT HEAD OF WATER AND PRACTICAL SUCTION LIFT OF PUMPS

Altitude	Barometric Pressure Pounds per sq. in.	Equivalent Head of Water Feet	Practical Suction Lift of Pumps Feet
Sea Level	14.73	33.95	25
¼ Mile (1,320 feet) above Sea Level	14.02	32.38	24
½ " (2,640 ") " " "	13.33	30.79	23
¾ " (3,960 ") " " "	12.66	29.24	21
1 " (5,280 ") " " "	12.02	27.76	20
1¼ " (6,600 ") " " "	11.42	26.38	19
1½ " (7,920 ") " " "	10.88	25.13	18
2 " (10,560 ") " " "	9.88	22.82	17

SIZE OF PUMP CYLINDERS

There is no set rule as to the proper size of the cylinders to be used in wells of various depths, that depending entirely on the amount of water desired and the power applied, though in a general way, when used with windmill or hand power, we advise the following as a guide:

Diameter of Cylinder....inches	2	2¼	2½	2¾
Size of Suction Pipe (or larger)..... "	1¼	1¼	1¼	1¼
Depth of Well....feet	over 300	300	250	125
Diameter of Cylinder....inches	3	3¼	3½	4
Size of Suction Pipe (or larger)..... "	1¼	1¼	1¼	2
Depth of Well....feet	90	70	50	30

As a general proposition we would advise submerging the cylinder below the water, particularly in deep wells, as it makes the priming of the cylinder certain, and unless absolutely necessary never use more than one length (about 20 feet) of pipe below the cylinder and preferably not over four or five feet.

CAPACITY OF CYLINDERS

The following table is arranged to show the diameters, length of strokes in inches, with capacities per stroke in U. S. gallons, of single-acting pump cylinders. To ascertain the capacity of cylinders with longer stroke than listed, add or multiply the capacities of such lengths as will aggregate the length required. To ascertain the amount of water discharged per minute, multiply the capacity as rated per stroke by the number of strokes per minute.

Diameter of Pump Cylinder Inches	Length of Stroke in Inches, with Capacity of Cylinders, per Stroke, in U. S. Gallons									
	1½	2	3	4	5	6	7	8	9	10
1	.0051	.0068	.0102	.0136	.0170	.0204	.0238	.0272	.0306	.0340
1⅛	.0064	.0086	.0129	.0172	.0215	.0258	.0301	.0344	.0387	.0430
1¼	.0079	.0106	.0159	.0212	.0265	.0318	.0371	.0424	.0477	.0530
1⅜	.0096	.0128	.0192	.0256	.0320	.0384	.0448	.0512	.0576	.0640
1½	.0114	.0152	.0228	.0304	.0380	.0456	.0532	.0608	.0684	.0760
1⅝	.0133	.0178	.0267	.0356	.0445	.0534	.0623	.0712	.0801	.0890
1¾	.0156	.0208	.0312	.0416	.0520	.0624	.0728	.0832	.0936	.1041
1⅞	.0178	.0238	.0357	.0476	.0595	.0714	.0833	.0952	.1071	.1190
2	.0204	.0272	.0408	.0544	.0680	.0816	.0952	.1088	.1224	.1360
2¼	.0258	.0344	.0516	.0688	.0860	.1032	.1204	.1376	.1548	.1720
2½	.0318	.0424	.0636	.0848	.1060	.1272	.1484	.1696	.1908	.2120
2¾	.0385	.0514	.0771	.1028	.1285	.1542	.1799	.2056	.2313	.2570
3	.0459	.0612	.0918	.1224	.1530	.1836	.2142	.2448	.2754	.3060
3¼	.0538	.0718	.1077	.1436	.1795	.2154	.2513	.2872	.3231	.3590
3½	.0624	.0832	.1248	.1664	.2080	.2496	.2912	.3328	.3744	.4160
3¾	.0715	.0954	.1431	.1908	.2385	.2862	.3339	.3816	.4293	.4770
4	.0814	.1086	.1629	.2172	.2715	.3258	.3801	.4344	.4887	.5430
4¼	.0919	.1226	.1839	.2452	.3065	.3678	.4291	.4904	.5517	.6130
4½	.1032	.1376	.2064	.2752	.3440	.4128	.4816	.5504	.6192	.6880
4¾	.1150	.1534	.2301	.3068	.3835	.4602	.5309	.6136	.6903	.7670
5	.1273	.1698	.2547	.3396	.4245	.5094	.5943	.6792	.7641	.8490
5¼	.1404	.1872	.2808	.3744	.4680	.5616	.6552	.7488	.8424	.9360
5½	.1542	.2056	.3084	.4112	.5140	.6168	.7196	.8224	.9252	1.0280
6	.1834	.2446	.3669	.4892	.6115	.7338	.8561	.9784	1.1007	1.2230
7	.2497	.3330	.4995	.6660	.8325	.9990	1.1655	1.3320	1.4985	1.6650
8	.3262	.4350	.6525	.8700	1.0875	1.3050	1.5225	1.7400	1.9575	2.1750
9	.4129	.5506	.8259	1.1012	1.3765	1.6518	1.9271	2.2024	2.4777	2.7530
10	.5100	.6800	1.0200	1.3600	1.7000	2.0400	2.3800	2.7200	3.0600	3.4000
11	.6169	.8226	1.2339	1.6452	2.0565	2.4678	2.8791	3.2904	3.7017	4.1130
12	.7338	.9784	1.4676	1.9568	2.4460	2.9352	3.4244	3.9136	4.4028	4.8920
13	.8616	1.1488	1.7232	2.2976	2.8720	3.4464	4.0208	4.5952	5.1696	5.7440
14	.9993	1.3324	1.9986	2.6648	3.3310	3.9972	4.6634	5.3296	5.9958	6.6620
15	1.1475	1.5300	2.2950	3.0600	3.8250	4.5900	5.3550	6.1200	6.8850	7.6500
16	1.3050	1.7400	2.6100	3.4800	4.3500	5.2200	6.0900	6.9600	7.8300	8.7000
18	1.6518	2.2024	3.3036	4.4048	5.5060	6.6072	7.7084	8.8096	9.9108	11.0120
20	2.0400	2.7200	4.0800	5.4400	6.8000	8.1600	9.5200	10.8800	12.2400	13.6000
22	2.4681	3.2908	4.9362	6.5816	8.2270	9.8724	11.5178	13.1632	14.8086	16.4540
24	2.9370	3.9160	5.8740	7.8320	9.7900	11.7480	13.7060	15.6640	17.6220	19.5800
26	3.4473	4.5964	6.8946	9.1928	11.4910	13.7892	16.0874	18.3856	20.6838	22.9820
28	3.9979	5.3306	7.9959	10.6612	13.3265	15.9918	18.6571	21.3224	23.9877	26.6530
30	4.5895	6.1194	9.1791	12.2388	15.2985	18.3582	21.4179	24.4776	27.5373	30.5970

USEFUL INFORMATION

TABLE OF PUMP PLUNGER LOADS—IN POUNDS

Lift in Feet	Diameter of Cylinders															
	1¾	2	2¼	2½	2¾	3	3¼	3¾	4	4¼	4¾	5	5¾	6	6¾	7¾
25	28	37	47	56	65	82	90	120	136	154	192	213	281	306	388	510
50	56	73	93	112	129	163	180	240	272	307	384	425	562	612	775	1021
75	84	110	130	168	195	230	270	360	409	460	576	639	845	920	1162	1535
100	112	148	187	224	260	306	360	480	544	615	770	850	1125	1224	1550	2042
125	140	184	234	280	320	384	450	600	681	770	960	1065	1405	1534	1940	2559
150	168	222	260	336	385	460	540	720	816	920	1150	1276	1685	1883	2325	3066
175	196	250	306	392	450	537	630	840	954	1075	1345	1491	1970	2147	2710	3583
200	224	296	354	448	515	612	720	960	1088	1230	1535	1700	2250	2448	3100	4085
225	252	333	423	504	580	690	810	1080	1226	1380	1730	1917	2530	2761	3490	4606
250	280	370	470	560	645	765	900	1200	1359	1535	1920	2124	2810	3059	3875	5104
275	308	407	517	616	710	844	990	1320	1499	1690	2110	2343	3090	3374	4260	5630
300	336	444	564	672	775	918	1080	1440	1632	1840	2305	2550	3370	3672	4650	6127
350	392	511	659	784	900	1071	1260	1680	1903	2150	2690	2974	3935	4283	5425	7146
400	448	592	708	896	1030	1225	1440	1920	2175	2455	3075	3400	4500	4896	6200	8170
450	504	666	846	1008	1160	1381	1620	2160	2453	2760	3460	3834	5060	5521	6975	9212
500	560	740	940	1120	1290	1531	1800	2400	2719	3070	3840	4250	5620	6120	7750	10212
550	616	814	1034	1232	1415	1688	1980	2640	2998	3375	4225	4686	6180	6748	8520	11259

This table shows the load the plunger rod must carry when in operation.

TABLE OF THEORETICAL HORSE POWER REQUIRED TO RAISE WATER TO DIFFERENT HEIGHTS

Feet Gals. per M n.	20	25	30	35	40	45	50	60	75	90	100	125	150	175	200	250
5	.025	.031	.037	.044	.05	.06	.06	.07	.09	.11	.12	.16	.19	.22	.25	.31
10	.050	.062	.075	.087	.10	.11	.12	.15	.19	.22	.25	.31	.37	.44	.50	.62
15	.075	.094	.112	.131	.15	.17	.19	.22	.28	.34	.37	.47	.56	.66	.75	.94
20	.100	.125	.150	.175	.20	.22	.25	.30	.37	.45	.50	.62	.75	.87	1.00	1.25
25	.125	.156	.187	.219	.25	.28	.31	.37	.47	.56	.62	.78	.94	1.09	1.25	1.56
30	.150	.187	.225	.262	.30	.34	.37	.45	.56	.67	.75	.94	1.12	1.31	1.50	1.87
35	.175	.219	.262	.306	.35	.39	.44	.52	.66	.79	.87	1.08	1.31	1.53	1.75	2.19
40	.200	.250	.300	.350	.40	.45	.50	.60	.75	.90	1.00	1.25	1.50	1.75	2.00	2.50
45	.225	.281	.337	.394	.45	.51	.56	.67	.84	1.01	1.12	1.41	1.69	1.97	2.25	2.81
50	.250	.312	.375	.437	.50	.56	.62	.75	.94	1.12	1.25	1.56	1.87	2.19	2.50	3.12
60	.300	.375	.450	.525	.60	.67	.75	.90	1.12	1.35	1.50	1.87	2.25	2.26	3.00	3.75
75	.375	.469	.562	.656	.75	.84	.94	1.12	1.40	1.69	1.87	2.34	2.81	3.28	3.75	4.69
90	.450	.562	.675	.787	.90	1.01	1.12	1.35	1.68	2.02	2.25	2.81	3.37	3.94	4.50	5.62
100	.500	.625	.750	.875	1.00	1.12	1.25	1.50	1.87	2.25	2.50	3.12	3.75	4.37	5.00	6.25
125	.625	.781	.937	1.094	1.25	1.41	1.56	1.87	2.34	2.81	3.12	3.91	4.69	5.47	6.25	7.81
150	.750	.937	1.125	1.312	1.50	1.69	1.87	2.25	2.81	3.37	3.75	4.69	5.62	6.56	7.50	9.37
175	.875	1.093	1.312	1.531	1.75	1.97	2.19	2.62	3.28	3.94	4.37	5.47	6.56	7.66	8.75	10.94
200	1.000	1.250	1.500	1.750	2.00	2.25	2.50	3.00	3.75	4.50	5.00	6.25	7.50	8.75	10.00	12.50
250	1.250	1.562	1.875	2.187	2.50	2.81	3.12	3.75	4.69	5.62	6.25	7.81	9.37	10.94	12.50	15.72
300	1.500	1.875	2.250	2.625	3.00	3.37	3.75	4.50	5.62	6.75	7.50	9.37	11.25	13.12	15.00	18.75
350	1.750	2.187	2.625	3.062	3.50	3.94	4.37	5.25	6.56	7.87	8.75	10.94	13.12	15.31	17.50	21.87
400	2.000	2.500	3.000	3.500	4.00	4.50	5.00	6.00	7.50	9.00	10.00	12.50	15.00	17.50	20.00	25.00
500	2.500	3.125	3.750	4.375	5.00	5.62	6.25	7.50	9.37	11.25	12.50	15.62	18.75	21.87	25.00	31.25

For general purposes, it is advisable to provide at least three times the horse power shown in table of Theoretical Horse Power.

USEFUL INFORMATION

HORSE POWER REQUIREMENTS

TABLE showing capacity and Horse Power required to operate McDonald Power Working Heads and Pumps, 40 up-strokes per minute, on 10-inch stroke, under following conditions:

Depth to Water, feet		50	75	100	125	150	175	200	250	300	350	400
Diam. Cyl. In.	Gals. per Hr.	HORSE POWER REQUIRED										
1 3/8	153	.09	.13	.18	.23	.27	.32	.37	.45	.55	.64	.73
1 5/8	216	.13	.19	.26	.32	.38	.45	.51	.64	.77	.90	1.00
1 3/4	250	.15	.22	.30	.37	.44	.52	.59	.74	.89	1.04	1.18
2	326	.20	.31	.41	.51	.62	.72	.82	1.05	1.20	1.40	1.60
2 1/4	410	.25	.38	.51	.64	.77	.89	1.00	1.25	1.50	1.75	2.00
2 1/2	510	.32	.48	.64	.80	.96	1.10	1.25	1.60	1.90	2.20	2.50
2 3/4	615	.40	.60	.80	1.00	1.20	1.40	1.55	2.00	2.40	2.75	3.20
3	730	.46	.69	.92	1.15	1.35	1.60	1.80	2.30	2.70	3.20	3.70
3 1/4	860	.54	.82	1.05	1.35	1.60	1.85	2.15	2.70	3.20	3.80	4.30
3 1/2	1000	.63	.94	1.25	1.55	1.85	2.15	2.50	3.10	3.70	4.35	5.00
3 3/4	1140	.72	1.05	1.45	1.80	2.15	2.50	2.85	3.60	4.30	5.00	5.75
4	1300	.82	1.30	1.65	2.05	2.40	2.85	3.25	4.10	4.90	5.70	6.60
4 1/4	1470	.88	1.32	1.75	2.20	2.64	3.08	3.51	4.38	5.25	6.14	7.00
4 1/2	1650	1.00	1.50	2.05	2.60	3.10	3.60	4.10	5.20	6.20	7.25	8.30
4 3/4	1840	1.09	1.64	2.19	2.74	3.30	3.84	4.38	5.47	6.55	7.66	8.78
5	2030	1.25	1.90	2.50	3.20	3.80	4.45	5.10	6.40	7.60	9.00	10.00
5 3/4	2690	1.60	2.40	3.20	4.00	4.80	5.60	6.35	7.95	9.55	11.20	12.80
6	2940	1.75	2.63	3.50	4.37	5.25	6.12	7.00	8.75	10.50	12.25	14.00
6 3/4	3720	2.21	3.31	4.42	5.50	6.62	7.72	8.80	11.00	13.20	15.40	17.60
7 3/4	4900	2.90	4.35	5.80	7.25	8.70	10.40	11.60	14.50	17.50	20.00	23.00
8	5208	3.07	4.61	6.14	7.67	9.21	10.75	12.28	15.35	18.40	21.50	24.60

The above table is figured on the basis of a pump efficiency of about 35 per cent, or practically three times the theoretical Horse Power required, thus allowing an ample margin for friction and other losses. When used with electric motor we recommend ½ Horse Power as the smallest practical size to use, regardless of cylinder size or well depth.

The above Horse Powers are figured on the basis of using a single-acting cylinder. If a double-acting cylinder is used, double the Horse Powers as found above.

If the Working Head operates on other than a 10-inch stroke, for which the above table is calculated, the Horse Power requirements, noted in the table, will vary in direct proportion as the length of the stroke varies, so that if you take a stroke twice as long, you must double the Horse Power, or if you take a stroke half as long, you then take only half the Horse Power. For example: If you wish the Horse Power requirements for 8-inch stroke, 8 inches are ⅘ of 10 inches, therefore, you take ⅘ of the Horse Power noted in the above table.

If the Working Head operates at other than 40 up-strokes per minute, for which the above table is calculated, the Horse Power requirements, noted in the table, will vary in direct proportion as the number of strokes varies, so that if you take twice the number of strokes, you must double the Horse Power, or if you take half the number of strokes you then take only half the Horse Power. For example: If you wish the Horse Power requirements for 35 up-strokes per minute, 35 being ⅞ of 40, you will then take ⅞ of the Horse Power requirements noted in the above table.

If it is desired to force the water discharged by the Working Head into a Pressure Tank, it must be borne in mind that every pound pressure in the Tank is equivalent to an additional lift of 2⅓ feet. Hence the equivalent head in feet corresponding to the pounds pressure in Tank, must be added to the depth of well to water, in obtaining the required Horse Power from the Chart. Example: Working Head has 10-inch stroke, running 40 up-strokes per minute, operating a 2½-inch cylinder in a well 80 feet to water, and forcing water into a Pressure Tank against a pressure of 40 pounds. Now the 40 pounds pressure in tank is equivalent to 40 x 2⅓ =93 feet. Then the total head would be 93+80 or 173 feet, or say 175 feet. From Table, the Horse Power required for 175 feet is found to be 1.10.

If, however, the discharge is to be forced into an open Tank instead of into a closed Pressure Tank, it is only necessary to add the height above ground in feet of the tank, to the depth of well to water, and use this result for finding the Horse Power required.

USEFUL INFORMATION

IRRIGATING

We publish here a table showing results of the Government tests on the quantity of water required for irrigation; local conditions of course vary and this table has been compiled from a comparison of various sections.

ACRES IRRIGATED BY VARIOUS QUANTITIES OF WATER

Showing the number of acres irrigated in 1, 10 and 24 hours, pumping various quantities, and irrigating various depths.

Gallons Pumped per Min.	1 Inch Deep	2 Inches Deep	3 Inches Deep	4 Inches Deep	5 Inches Deep	6 Inches Deep
	Acres Irrigated in 1 Hour					
600	1.3	.6	.4	.3	.2	.2
824	1.8	.9	.6	.4	.3	.3
944	2.1	1.0	.7	.5	.4	.3
988	2.2	1.1	.7	.5	.4	.3
1000	2.2	1.1	.7	.5	.4	.3
1200	2.6	1.3	.9	.6	.5	.4
1500	3.3	1.6	1.1	.8	.6	.5
2000	4.4	2.2	1.4	1.1	.9	.7
	Acres Irrigated in 10 Hours					
600	13.2	6.6	4.4	3.3	2.6	2.2
824	18.2	9.1	6.0	4.5	3.6	3.0
944	20.8	10.4	6.9	5.2	4.1	3.4
988	21.8	10.9	7.2	5.4	4.3	3.6
1000	22.1	11.0	7.3	5.5	4.4	3.7
1200	26.5	13.2	8.8	6.6	5.3	4.4
1500	33.1	16.5	11.0	8.2	6.6	5.5
2000	44.2	22.1	14.7	11.0	8.8	7.3
	Acres Irrigated in 24 Hours					
600	31.8	15.9	10.6	7.9	6.3	5.3
824	43.7	21.8	14.5	10.9	8.7	7.3
944	50.0	25.0	16.7	12.5	10.0	8.3
988	52.4	26.2	17.4	13.1	10.4	8.7
1000	53.0	26.5	17.6	13.2	10.6	8.8
1200	63.6	31.8	21.2	15.9	12.7	10.6
1500	79.5	39.7	26.5	19.9	15.9	13.2
2000	106.0	53.0	35.3	20.5	21.2	17.6

RULES FOR CALCULATING SIZE AND SPEED OF PULLEYS

TO FIND DIAMETER OF DRIVER — Multiply number of revolutions of driven by its diameter and divide product by number of revolutions of driver.

TO FIND DIAMETER OF DRIVEN — Multiply number of revolutions of driver by its diameter and divide product by number of revolutions of driven.

TO FIND REVOLUTIONS OF DRIVEN SHAFT — Multiply diameter of pulley on drive shaft by its number of revolutions and divide product by diameter of pulley on driven shaft.

Reverse above rule to ascertain number of revolutions of drive shaft.

USEFUL INFORMATION

FRICTION OF WATER IN PIPES

Friction loss in pounds pressure per square inch for each 100 feet of length in different size clean iron pipe, discharging given quantities of water per minute.

G. A. ELLIS, C. E.

Gal. per Min.	SIZE OF PIPE—INSIDE DIAMETER, INCHES											
	¾	1	1¼	1½	2	2½	3	4	6	8	10	12
5	3.3	0.84	0.31	0.12	.....	.....	.....	.....	.....	.....	.....	.....
10	13.0	3.16	1.05	0.47	0.12	.....	.....	.....	.....	.....	.....	.....
15	28.7	6.98	2.38	0.97	.....	.....	.....	.....	.....	.....	.....	.....
20	50.4	12.3	4.07	1.66	0.42	.....	.....	.....	.....	.....	.....	.....
25	78.0	19.0	6.40	2.62	.....	0.21	0.10	.....	.....	.....	.....	.....
30	.....	27.5	9.15	3.75	0.91	.....	.....	.....	.....	.....	.....	.....
35	.....	37.0	12.04	5.05	.....	.....	.....	.....	.....	.....	.....	.....
40	.....	48.0	16.1	6.52	1.60	.....	.....	.....	.....	.....	.....	.....
45	.....	.....	20.2	8.15	.....	.....	.....	.....	.....	.....	.....	.....
50	.....	.....	24.9	10.0	2.44	0.81	0.35	0.09	.....	.....	.....	.....
75	.....	.....	56.1	22.4	5.32	1.80	0.74	.....	.....	.....	.....	.....
100	.....	.....	.....	39.0	9.46	3.20	1.31	0.33	0.05	.....	.....	.....
125	.....	.....	.....	.....	14.9	4.89	1.99	.....	.....	.....	.....	.....
150	.....	.....	.....	.....	21.2	7.0	2.85	0.69	0.10	.....	.....	.....
175	.....	.....	.....	.....	28.1	9.46	3.85	.....	.....	.....	.....	.....
200	.....	.....	.....	.....	37.5	12.47	5.02	1.22	0.17	.....	.....	.....
250	.....	.....	.....	.....	.....	19.66	7.76	1.89	0.26	0.07	0.03	0.01
300	.....	.....	.....	.....	.....	28.06	11.2	2.66	0.37	0.09	0.04	.....
350	.....	.....	.....	.....	.....	.....	15.2	3.65	0.50	0.12	0.05	0.02
400	.....	.....	.....	.....	.....	.....	19.5	4.73	0.65	0.16	0.06	.....
500	.....	.....	.....	.....	.....	.....	30.8	7.43	0.96	0.25	0.09	0.04
750	.....	.....	.....	.....	.....	.....	.....	.....	2.21	0.53	0.18	0.08

FIRE STREAMS

Pressures required at nozzle and at pump, with quantity and pressure of water necessary to throw water various distances through different-sized nozzles, using 2½-inch rubber hose and smooth nozzles. G. A. Ellis, C. E.

Size of Nozzles	1-inch				1⅛-inch				1¼-inch				1⅜-inch			
Pressure at nozzle.....	40	60	80	100	40	60	80	100	40	60	80	100	40	60	80	100
* " at pump or hyd.with 100 ft. 2½-in. rubber hose.	48	73	97	121	54	81	108	135	61	92	123	154	71	107	144	180
Gallons per minute.....	155	189	219	245	196	240	277	310	242	297	342	383	293	358	413	462
Horizontal distance thrown.	109	142	168	186	113	148	175	193	118	156	186	207	124	166	200	224
Vertical distance thrown....	79	108	131	148	81	112	137	157	82	115	142	164	85	118	146	169

*For greater lengths of 2½ hose the increased friction can readily be obtained by noting the differences between the above-given "pressure at nozzle" and "pressure at pump or hydrant with 100 feet of hose." For instance, if it requires at hydrant or pump eight pounds more pressure than it does at nozzle to overcome the friction when pumping through 100 feet of 2½-inch hose (using 1-inch nozzle with 40 pounds pressure at said nozzle) then it requires 16 pounds pressure to overcome the friction in forcing through 200 feet of the same size hose.

USEFUL INFORMATION

PER CENT OF SAVING OF FUEL BY HEATING FEED WATER

Steam at 60 Pounds

Final Temperature	Initial Temperature of Water											
	32°	40°	50°	60°	70°	80°	90°	100°	120°	140°	160°	180°
60°	2.39	1.71	.86	.....	.....	.....	.....	.....	.....	.....	.....	.....
80	4.09	3.43	2.59	1.74	.88	.....	.....	.....	.....	.....	.....	.....
100	5.79	5.14	4.32	3.49	2.64	1.77	.90	.....	.....	.....	.....	.....
120	7.50	6.85	6.05	5.23	4.40	3.55	2.86	1.80	.....	.....	.....	.....
140	9.20	8.57	7.77	6.97	6.15	5.32	4.47	3.61	1.84	.....	.....	.....
160	10.90	10.28	9.50	8.72	7.91	7.09	6.26	5.42	3.67	1.87	.....	.....
180	12.60	12.	11.23	10.46	9.68	8.87	8.06	7.23	5.52	3.75	1.91	.....
200	14.30	13.71	13.	12.20	11.43	10.65	9.85	9.03	7.36	5.62	3.82	1.96
220	16.	15.42	14.70	14.	13.19	12.33	11.64	10.84	9.20	7.50	5.73	3.93
240	17.79	17.13	16.42	15.69	14.96	14.20	13.43	12.65	11.05	9.37	7.64	5.90
260	19.40	18.85	18.15	17.44	16.71	15.97	15.22	14.45	11.88	11.24	9.56	7.86

SUGGESTIONS REGARDING CORRESPONDENCE ABOUT PUMPS

In ordering or inquiring about pumps, purchasers should inform us upon the following questions:

For what purpose is the pump to be used?

What is the maximum quantity to be pumped per hour?

To what height is the water to be lifted by suction; the length of suction pipe, size and number of turns?

What is the pressure of steam to be used?

Is the water to be pumped hot or cold?

Inquirers about **Deep Well Pumps** should inform us on the following questions:

Is your well already bored? If so, is it cased, and how? Or, if open well, so state.

What is its depth?

At what height does the water stand in the well, and what is the distance from water to ground level?

How much higher than the surface of the ground do you wish to raise the water?

What is the length of the horizontal pipe from well to tank or reservoir?

What is the greatest quantity, in gallons, of water required per day or hour?

Has your well been tested? If so, how, and what was the result?

ELECTRICAL UNITS

The electric units are as follows:

Volt.—The unit of electrical motive force. Force required to send one ampere of current through one ohm of resistance.

Ohm.—Unit of resistance. The resistance offered to the passage of one ampere, when impelled by one volt.

Ampere.—Unit of current. The current which one volt can send through a resistance of one ohm.

Coulomb.—Unit of quantity. Quantity of current which, impelled by one volt, would pass through one ohm in one second.

Farad.—Unit of capacity. A conductor or condenser which will hold one coulomb under the pressure of one volt.

Joule.—Unit of work. The work done by one watt in one second.

Watt.—The unit of electrical energy, and is the product of the ampere and volt. That is, one ampere of current flowing under a pressure of one volt gives one watt of energy.

One electrical horse power is equal to 746 watts.

One kilowatt is equal to 1900 watts.

To find the watts consumed in a given electrical circuit, such as a lamp, multiply the volts by the amperes.

To find the volts, divide the watts by the amperes.

To find the amperes, divide the watts by the volts.

To find the electrical horse power required by a lamp, divide the watts of the lamp by 746.

To find the number of lamps that can be supplied by one electrical horse power of energy, divide 746 by the watts of the lamp.

To find the electrical horse power necessary, multiply the watts per lamp by the number of lamps and divide by 746.

To find the mechanical horse power necessary to generate the required electrical horse power, divide the latter by the efficiency of the generator.

To find the amperes of a given circuit, of which the volts and ohms resistance are known, divide the volts by the ohms.

To find the volts, when the amperes and watts are known, multiply the amperes by the ohms.

To find the resistance in ohms, when the volts and amperes are known, divide the volts by the amperes.

Parts of Pumps

We have issued a complete repair list on pumps and cylinders which we will gladly send upon request.

A. Y. McDONALD MFG. CO.

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CLASSIFIED INDEX

	PAGES
WATER CLOSETS	1-80
BATH TUBS	81-116
SHOWERS	116-131
LAVATORIES	132-183
BATH ROOM FURNISHINGS	184-203
SINKS	204-246
LAUNDRY TRAYS	247-260
URINALS	261-281
BRASS GOODS, PLUMBERS	282-446
DRINKING FOUNTAINS	447-464
RANGE BOILERS AND HEATERS	465-479
CAST IRON TRAPS AND CESS POOLS	480-513
LEAD GOODS	514-522
SOIL PIPE AND FITTINGS	523-553
SERVICE BOXES AND HYDRANTS	558-567
WATER SUPPLY SYSTEMS	573-629
POWER PUMPS AND WORKING HEADS	630-682
PUMPS	683-783
CYLINDERS AND WELL SUPPLIES	784-888
HEATING BOILERS AND SUPPLIES	890-950
VALVES AND ENGINE TRIMMINGS	951-1025
ELECTRIC LIGHT SYSTEMS	1026-1057
GAS COCKS	1058-1072
OIL SPECIALS	1073-1106
BELTING, PACKING AND HOSE	1107-1132
PIPE CASING AND FITTINGS	1142-1237
TOOLS	1237-1278